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PRICE ANALYSES, WARS, AND DEPRESSIONS

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WARS CUT across the course of orderly economic development and leave scars in economic growth which subsequent developments cannot erase. Yet wars also arouse acute concern about the adequacy of supplies of foods, fibers and industrial products, as well as of munitions, and lead to new interest in statistics and economic planning. Most of the statistical materials we now utilize, and almost all of the index numbers of quantity and price, grew out of the first World War. The devastation and upheaval of war, which distorts normal economic growth and development, may yet leave in its train richer and fuller records for understanding or adjusting our economic life.

Price analysis,[1] as a tool of applied research, made its first marked

[1] The term "price analysis" is somewhat ambiguous. As used generally among agricultural economists, it includes not only the quantitative treatment of time series for a given commodity, but also a qualitative study of the technological and institutional conditions of the production, marketing, and utilization of the product concerned, as a pre-requisite to the statistical examination. This study should cover, on the side of technical facts, the character of the product with respect to the nature and length of the productive process, the perishability, uniformity and grades of the product, and sometimes even the internal organization of the producing units; with respect to marketing and processing institutions, the type of competition present, the mechanisms through which price is established and recorded, and the elements of non-competitive adjustment or control present; and with respect to its utilization, the product or products derived from the basic commodity, their use as producer or consumer goods, their relation to substitute or competitive products, and their place in the budget or diet of various consumer groups with respect to income, location, race, etc. From this qualitative study (which may vary all the way from very sketchy to very elaborate and exhaustive), a series of hypotheses are developed concerning the supply-demand relations, which form the basis for the quantitative study, with its collection and analysis of data. The quantitative study, in turn, may be restricted to consideration of the single relation between supply and price, or it may explore further the relations of price to subsequent production, of price to carryover or storage, of price to consumption, of various factors to margins between prices at different geographic locations or different stages in the marketing process, or of quality factors to prices of different lots. Perhaps the longer term "commodity supply and demand analysis" would be a more accurate term to cover this range of work. "Price analysis" has come to be the term generally used, however,

development in the decade after the first World War. The early studies were largely restricted to the data of prewar years, ending in 1913 or 1914.[2] The data of the period 1914–1920 were generally discarded as so distorted by war and postwar inflation to be impossible of satisfactory analysis. The only application of the prewar relations to the postwar conditions, in many of these early studies, was by analogy.[3]

As the years rolled by, and more and more postwar data accumulated, hardy explorers began trying to see what they could do with six or eight annual observations, or with monthly observations from this same short span of years, to supplement the prewar experience. By 1929, a considerable body of postwar analysis had developed, and was being applied as a background in agricultural outlook work and other forecasting activities.[4] Many of these studies never reached formal publication, however, as the authors preferred to hold them back for the test of more years of experience and the dependability of a larger number of observations.

The long years of depression after 1929 subjected these earlier studies to a severe test in a period when domestic buying power varied through an unprecedentedly large amplitude, and the previous importance of other factors dwindled. After 1933, AAA operations shifted the institutional setting for many farm products, and introduced new factors—acreage control, crop loans, marketing agree-

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and it will therefore be used here to cover the broader meaning. (For a fuller discussion of various types of price analysis, see Mordecai Ezekiel, Methods of correlation analysis, pp. 323–332; New York, 1930.)

[2] Henry A. Wallace's pioneer study of hog prices (Agricultural prices, 1920) included data only through 1916. Henry L. Moore's study on potatoes (Jour. Am. Stat. Assoc., Vol. 18, No. 137, March 1922) was restricted to prewar data. Holbrook Working's two bulletins on potato prices (Minn. Agri. Expt. Sta. Tech. Bul. 10, Oct. 1922 and Tech. Bul. 29, Oct. 1925) included the war years with others. So did Waugh's first study of potato prices in New York (N.J. Dept. of Agri., Cir. 66, July 1923). Henry Schultz's study of beef prices (JOUR. FARM ECON., July 1924) was limited to prewar data. Killough's study of oat prices (U.S.D.A. Dept. Bul. 1351, Sept. 1925) based its formulae on prewar data exclusively. So did Henry Schultz's first study of sugar prices (Jour. Pol. Econ., Oct. and Dec. 1925). John A. Hopkins' study of beef prices (Iowa Agri. Expt. Sta., Agri. Econ. Sec., Res. Bul. 101, Dec. 1926) included correlations for a brief postwar period as well as prewar. Haas and Ezekiel's study of hog prices (U.S.D.A. Dept. Bul. 1440, Nov. 1926) restricted its analyses to prewar data, with one exception.

[3] For example, see Haas and Ezekiel, *loc. cit.*, pp. 28–29.

[4] For comprehensive bibliographies of price analysis studies, see Louise O. Bercaw, Price analysis, U.S.D.A., Bur. Agri. Econ., Agri. Econ. Bibliography 48, Sept. 1933; Price studies, of the U. S. Dept. of Agriculture showing demand-supply, supply-price, and price-production relationships, U.S.D.A. Bur. Agri. Econ., Agri. Econ. Bibliography 58, Oct. 1938 (both mimeographed). Supplementary typed bibliographies covering later studies are also available from the Bur. of Agri. Econ. library.

ments—which modified the previous institutional structure even more than had the operations of the Federal Farm Board from 1930 through 1932. Price analyses played a vital part in the operation of many of these new controls. Administrators and control committees running action programs used confidential estimates of the probable effects of various alternative steps, as a guide to administrative decisions,[5] while research units, advising the action agencies, used them in the study and interpretation of completed programs.[6] They were used as checks in over-all studies of the effectiveness of the new institutional controls.[7] They figured in legal findings, in court proceedings,[8] in legal decisions, and in the interpretation of shifting international conditions.[9]

The War of 1939 may now be opening a new chapter. To date it has affected farm products mostly by cutting off export markets, rather than by expanding them as after 1914. Whether the price inflation of 1914–20 will reappear is also in doubt. But if the war and our defense program run long enough and big enough, the resulting distortions in economic records will again create a chasm which will be difficult for economic analyses to bridge.

While we watch the new chapter unfold, one important job is left to be done to complete and make available the experience of the past two decades. The period 1920–40 is unique, in that it embraced almost one decade of relatively stable progress, on the domestic scene at least (ignoring the undermining developments of foreign loans, high tariffs, and trade restrictions), and a second decade of great variability in price level, business activity, and economic institutions. The events of this second decade provided a drastic test for the stability and flexibility of economic analyses of the previous decade, and a challenge to price analysts to adapt themselves and their work to the changing conditions.

[5] An early example of such use was the special report: Economic situation of hog producers, Senate Document 184, 72nd Cong., 2nd session, Washington, 1933.

[6] A number of such studies are in the files of various units of the Department of Agriculture. While they have been used as bases for annual reports and other published conclusions, the underlying price analysis studies apparently have not been published.

[7] This use was especially notable in the series of Brookings Institution studies of the AAA.

[8] An analysis of the effects of the processing taxes levied under the Agricultural Adjustment Act, U. S. Treas. Dept., 1937; prepared by Bur. of Agri. Econ., U.S.D.A. This bulletin has been widely used in suits over processing tax refunds and "unjust enrichment" collections.

[9] World trade barriers in relation to American agriculture, 73rd Cong., 1st session, Senate Doc. No. 70, pp. 152–171, 211–213, 225–229, 287–288, Washington, 1933.

While some investigators reacted to the changing situation by renouncing almost all faith in price analysis and statistical research with time series, others have watched the performance of their old analyses, modified them from time to time as new materials developed, or as the institutional setting shifted, and found them as a whole a reasonably effective guide through the welter of drastic change. Others have supplemented the older techniques by new ones which placed more emphasis on long-time reactions and on the farm management situations which underlie producer response, and have started to create a richer and more effective technique of analysis.[10] One of the men in best position to see the development and use of price analysis states:

"We have done much more forecasting since 1933 than was done before that time. While we have not been writing statistical treatises, we have been operating and we have a good record in forecasts made from time to time. These are to be found in the outlook reports, Price Situation reports, and confidential documents. We have found that some of the earlier analyses were helpful but that factors had to be given different weights, and that judgment had to be exercised to a greater extent, particularly with reference to whether the conditions that were sampled in the past were likely to prevail in the future, and what modifications were necessary for expected changes."[11]

One job that needs doing now is to place on record the experience of the past two decades, showing how well or ill the pre-depression studies actually fared under the subsequent stresses, and how they were modified to meet the new conditions. That is a job that cannot be done by one man alone. It can be accomplished only if many students each do their part. Each of the students of price analysis who completed studies in the years preceding the depression, and who watched their performance or recalculated their results as the experience of those years unfolded, should now publish his material where it will be available for others. Such records of performance should make clear the successes or failures of the analyses in actual forecasting.[12] Where the individual who made the study is not in

[10] R. H. Allen, Erling Hole, and R. L. Mighell, Supply responses in milk production in Cabot-Marshfield, Vermont, U.S.D.A. Tech. Bul. 709, 1940.
R. L. Mighell and R. H. Allen, Supply schedules—"long-time" and "short-time," JOUR. FARM ECON., 22(3): 544–557. 1940.

[11] From a letter from Dr. O. C. Stine, Chief of the Division of Statistical and Historical Research, Bur. Agri. Econ., U.S.D.A.

[12] It is not a simple or easy matter to test out the accuracy of a formula when extrapolated to subsequent data. Recurrent revisions in crop and live-stock estimates, changes in methods of price quotations, and even changes in the characteristics of the market itself, make it necessary to use extreme care to make sure that

position to compile and publish this record of performance, some other student should do the job instead, recalculating the regressions each year or two as new observations are added,[13] or modifying the analyses as institutional changes (such as government acreage controls or crop loans) make reformulations necessary. The work of reviewing the past experience is already under way in some institutions, where one or more staff members are reviewing the previous work, studying its effectiveness, and drawing together the proved and dependable portions. In some cases, such work is being done without thought of preparing the results for formal publication. Equally important with making these studies, though, is placing them on record for others to use. All such studies should be pointed to a written review and publication of experience and findings, wherever that is at all possible. When records of performance are completed and published for price analysis studies in a number of commodities, there will then be a real scientific basis for judging how reliable or unreliable such studies have proved in actual forecasting, for knowing the confidence that can be placed in such procedures in future periods of relative calm between war stresses, and for judging how they may best be modified to meet changing conditions.

Review studies of this sort will not only conserve the experience of the past, but will suggest new leads or new approaches to a solution of the problems. Thus recent criticisms of earlier elasticity of supply analyses[14] have helped stimulate the development of broader methods of analysis[15] which should give more dependable results. So far as I am aware, few corresponding tests have been published on earlier analyses in other fields, such as of supply-price relations or of price-consumption relations.

Many research units which do practical price analysis work are busy with new studies and reports on current situations as a guide to action programs. In such cases, where attempts to study and

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the newer data are comparable with the earlier data from which the equation was computed. Extensive adjustments are often necessary to secure such comparability. Sometimes the changes are so great that it cannot be secured, and a point has to be selected beyond which the chapter must be written off as closed.

[13] The present author, for example, is not now in position to make critical studies of these types for the analyses he published during the 1920's.

[14] J. M. Cassels and Wilfred Malenbaum, Doubts about statistical supply analysis, JOUR. FARM ECON. 20(2): 1938.

[15] R. L. Mighell and R. H. Allen, *loc. cit.* See also Supply responses in the Cabot-Marshfield area, Vermont, U.S.D.A. Tech. Bul. 709, by the same authors and Erling Hole, April 1940.

publish summaries of past experience must compete with current duties, the amount of energy that can be devoted to this historical appraisal will necessarily be limited. One way of meeting this difficulty might be by encouraging students in search of subjects for Ph. D. theses to make studies in this field. This would be especially fruitful where the student could do his thesis in collaboration with the investigator who had made the original study, who could make available to him his unpublished notes and records of subsequent forecasts, and his ideas on improvements and modifications in methods. A series of Ph.D. theses, each reviewing the history, forecasting accuracy, and development in methods and techniques of one study in commodity price analysis, should add greatly to the effectiveness of subsequent work in this field.

One other area for price analysis study should also be mentioned. That is the problem of forecasting the general price level itself. Many years have elapsed since Holbrook Working published his first crude attempt at explaining the general price level in terms of its mathematical relation to the supply of money.[16] Since then there has been a vast expansion in data on monetary matters and on the business cycle. The mechanism of its operation, and the interrelation of the changes, have been exhaustively explored by Mitchell, Fisher, Mills, Schumpeter, and many others. The functions of credit, savings, and investment in changes in business activity have been pulled from the realm of mysticism by the work of Keynes and his school,[17] and precise data measuring the factors in the balance of funds paid out and funds currently expended are becoming available.[18] The mechanism of commodity cycles, in industry as well as

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[16] Holbrook Working, Prices and the quantity of circulating medium, 1890–1921, Quarterly J. of Econ., Vol. 37, February 1923.

[17] Martin Taitel, Profits, productive activities, and new investment, especially Chaps. 15 and 16, Monograph No. 12, Temporary National Economic Committee, Washington, 1940. (Now in process of publication.)

[18] Arthur D. Gayer, Fiscal policies, The American Econ. Rev., Vol. 18(1), Supplement, March 1938.

Statement by Lauchlin Currie, in Hearings before the Temporary National Economic Committee, Part 9, Savings and investment, pp. 3520–38, Washington, 1939.

George Terborgh, Estimated expenditures for new durable goods 1919–1938, Federal Reserve Bul., p. 731, Sept. 1939.

George Terborgh, Durable goods expenditures in 1939, Federal Reserve Bul., p. 116, Feb. 1940.

Monthly data on investment factors and the net government contribution (embracing all expenditure factors which are offsets to savings) have been compiled in the Dept. of Commerce for a number of years back. It is expected they will soon be published for general use, with data for current months.

in agriculture, has become better understood,[19] and their significance in the general business cycle has begun to be measured.[20]

Yet, despite all this progress in theory and basic facts, little progress has been made in our ability to forecast either the timing or the extent of turns in business activity or of general price level.[21] Our judgments in this field, as to timing and extent, are still largely based upon historical analogy. Mathematical formulations of the theories, objectively supported by the analysis of statistical series in the way with which we are familiar in commodity price analyses, are certainly sadly lacking. Business activity and general price level are two independent factors present in almost every commodity price analysis or forecast. Until we can forecast them more accurately the entire forecast rests upon shaky ground. This should be a fruitful field for workers well-trained in the general theory of business cycles and monetary and fiscal policies, as well as in the theories and techniques of price analysis.

Looking backwards may sometimes seem a futile exercise. Yet we can only know how far we can depend on our tools by determining how reliable they have proved to date. The new war has initiated a new period of uncertainty and change, the eventual magnitude of which no man can yet gauge. If some of us use this period of uncertainty to learn as much as possible from the experiences of the two decades which are past, that will strengthen our profession for whatever contribution it may make in the unknown years to come. At the same time, others can forge ahead by turning the weapons of price analysis on other areas of economic life where contending theories have not yet been tested by objective measurement of the reactions within the system of successive events.

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[19] Mordecai Ezekiel, The cobweb theorem, Quar. Jour. Econ., February 1938. J. B. D. Derksen, Long cycles in residential building: An explanation, Econometrica, 8(2), April 1940.

[20] J. Tinbergen, Business cycles in the United States of America, 1919–1932, Vol. 2, Col. Univ. Press, New York, 1939.

[21] One exception was in the forecast of the inventory recession in the first quarter of 1940, following the premature war-inventory boomlet of the last quarter of 1939. Forecasts of this recession were based upon data on the contributions of government expenditures, export balances, net investment, and other factors to the previous boom, and upon forecasts of these contributory factors during subsequent months. Yet analysts differed widely in their forecasts of the extent and probable duration of the downturn. The downturn started precisely at the time expected, and during the first quarter followed the pattern expected by the more pessimistic forecasters. Thereafter the tempo of events in Europe, and of our greatly enlarged defense program here, began to outweigh the other factors, and checked the decline sooner than many had expected.

WAR-TIME PRICE CONTROL IN THE UNITED KINGDOM

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Basic Facts

IT IS the declared goal of the British Government's war-time price policy to assure reasonable stability of the retail prices for food and other essential commodities of a staple character, or at least a limitation of price increases to what appears justified by unavoidable increases in costs. Such a price policy for food or other essential commodities for mass consumption, if it is to be effective, cannot be separated from the basic general economic issues with which the country is faced. The physical requirements of the economic war effort in the United Kingdom are of a magnitude which cannot be fully met by increased production at home and such current inroads on existing capital reserves as can prudently be made in the circumstances. Everyday consumption must therefore be curtailed, and supplies in consumer markets will accordingly be reduced. At the same time, however, the money income of the community is bound to increase in substantial proportion. The increase in home production, which is gradually getting under way, must needs result in an expansion of the wage bill, quite apart from the increase in wage-rates which has taken place since the outbreak of war, and purchasing power in the hands of consumers is accruing at a rate considerably above prewar levels. In such conditions—namely, curtailed consumer supplies coinciding with increased monetary buying power—general prices are bound to rise, unless the surplus buying power is rendered ineffective by taxation and saving, or price control supported by physical checks on demand.

Much of the rise in the prices of consumer goods which has taken place since the outbreak of war is not going into domestic income, but is the result of an increase in costs that do not become domestic income at some other point. Such increases, partly due to the depreciation of sterling, are the rise in import prices, the costs of war risks and the rise in freight rates for neutral shipping. They are wholly unavoidable, and their incidence on the general cost of living cannot be prevented. Just as any other increase in prices, however, they can be discriminately distributed over the range of goods and services the prices of which make up the cost of living.

Official Policy

Despite considerable change and stiffening of opinion in recent months, official views are not as yet inclined toward a policy of taxation and compulsory saving of a type and scale sufficient to render fully ineffective the surplus buying power. There can therefore be little doubt that the cost of living must rise further as the war develops, and that the price increase will play an important part in enforcing the necessary restriction of aggregate consumption. In fact, if no drastic attempt is made to otherwise neutralize the surplus of purchasing power, it will be extorted from the public largely by rising prices. If wage rates to a large extent were to rise with every increase in the retail price level, such developments would tend to produce the well-known spiral of alternately rising prices and wages. The authorities are aware of this, and while they were not prepared to prevent by appropriate neutralization of consumer buying power the primary waves, so-to-speak, of the rise in prices, they do wish to prevent a secondary, self-perpetuating, rise in wages and prices. Hence their desire to keep down the prices for a limited range of important necessaries with a view to forestalling wage increases. Low fixed prices for those necessaries, enabled by government subsidies, are being supported, in some cases, by consumer rationing to assure a more equitable distribution than would otherwise obtain.

Price Control Measures

Wholesale prices of agricultural products for human consumption since the outbreak of war have been fixed or controlled one way or the other. In some cases the Government is the sole importer and primary trader, fixing buying and selling prices. Other imports and trading are permissible only under special license from the Ministry of Food, which partly involves a control of buying and selling prices, and again for other products wholesale prices have been fixed, though trading has not been taken over by the authorities. Similarly a variety of controls operate for agricultural raw materials, ranging from the extreme case of wool for which the Government has monopolized buying and selling under fixed schedules of raw prices, to the other extreme case, cotton, which except for the fixation of spinner margins for yarn was virtually free from direct and specific price control until October 1, 1940.[1]

[1] The implications of general price supervision under the Prices of Goods Act

Wholesale price policy as it emerges from these measures has been influenced by conflicting tendencies. British farmers are to receive prices that stimulate production, leave a reasonable return to the farmer and enable him to pay a fair wage to the worker. As to traders margins there is no evidence of a tendency to curtail them. On the other hand, every effort is being made to keep down import prices, and while it is the British authorities' policy to favor Empire producers by directing their purchases as far as possible toward Empire sources, they are definitely anxious to prevent any undue increases in the price of the staple commodities they buy.

Retail prices of foodstuffs, except for less essential and luxury products, are rigidly fixed, though changes are being made, as the necessity arises, for seasonal reasons or otherwise. In a large number of orders prices were directly fixed for meats, bacon and ham, sausages, lard, margarine and cooking fats, fresh milk, cheese, and cream, potatoes, herrings, dried fruits, oranges, canned salmon, eggs, sugar and tea. To take automatically account of seasonal and local variations, prices in some cases have been frozen on, or in certain proportion to, levels obtaining one year before. Prices of bread and retailed flour are being held stable, in relation to the controlled wholesale prices of flour, under some sort of informal understanding which has been operative for some time back. In this connection a scale of bakers' margins established by the Food Council has been of considerable assistance. Retail prices of foodstuffs in general come under the supervision of the local food control committees.

Retail prices of an extensive list of articles in common use in daily life are being controlled as from January 1, 1940, and particularly since June, 10, 1940, under general price legislation, the Prices of Goods Act of November 16, 1939, and subsequent Orders. Such price-regulated articles as are made from agricultural raw materials are all kinds of clothing and household textiles as well as boots and shoes. For the goods thus declared to be price-regulated goods only "permitted increases" over their prices as at August 21, 1939, are allowed. Permitted increases are such increases as are reasonably justified as a result of subsequent changes in the business, that is, increases in costs, including overhead. Apart from such general

and Orders are discussed below. As from October 1, 1940, maximum prices have been fixed for American and Egyptian cotton in the Liverpool spot and futures markets.

provisions "permitted increases" have been expressly specified in a number of orders relating to branded goods. These specifications were made at the instance of the manufacturers of the articles concerned. Price control on the basis of this legislation, it should be noted, though directly relating only to retail goods, appears to be rather inclusive in principle, extending to wholesale prices as well, since the same limitations to price increases are made to apply to all the more important classes of materials used in the manufacture of the price-regulated goods. To the extent, however, that prices of materials are already directly fixed or otherwise controlled under Orders passed under the Emergency Powers Defense Regulations (for example, cotton yarns through fixation of spinner margins) they do not fall under price-regulation under the Prices of Goods Act. Goods intended for export also are exempted. The Act further prohibits the holding back of stocks of price-regulated goods.

Price supervision under this legislation is entrusted to a central price regulation committee and seventeen local committees in the United Kingdom. Penalties for violation of the regulations are severe. However, in those cases where "permitted price increases" have not, or not as yet, been specified, the control effect of these provisions is dependent upon a lengthy procedure of enquiry and upon initiative for legal action to be taken by individual customers through the price regulation committees. The committees must therefore rely on the assistance of the public to enable effective measures against profiteering. In view of these conditions, and because of the leeway in many cases allowed in interpreting what actually are "permitted increases" in the sense of the Act, it remains to be seen how effective such price control will be. Many retail associations apparently have secured official approval for pricing formulae which will permit retailers to maintain normal profit margins. Yet, even if the Act is therefore unlikely to reduce manufacturers', middleman's and retailers' margins, it will tend to set a definite limit to their increase, in respect of price-regulated goods, and thus to prevent widespread profiteering in goods essential in every day consumption.

Food Subsidies

The Government's desire to keep down prices for a limited range of important necessaries is clearly revealed by its policy of subsidizing retail prices of bread (wheat), milk, meats and bacon,

adopted early in December 1939. The authorities have not undertaken any unlimited commitments regarding a continuance, or the scope, of these subsidies. However, it appears to be their hope that the policy can be maintained and in conjunction with a stability of rents will tend to stabilize a most important segment of the cost of living. This should facilitate stabilization of wage rates to check secondary price inflation. Official comment also indicates that the Government is fully aware of the economics of a policy of price subsidization: that such policy tends to increase consumption of the subsidized products and that it should therefore be limited to commodities of the most essential character. Where it is applied to unrationed goods, these should be products of inelastic consumption (e.g. bread), or of most outstanding importance to national health (protective foods, e.g. milk). It is realized also that price subsidies—being negative indirect taxation—could only shift the burden of an impending increase in general prices; and that as a measure of social policy, to improve the relative position of the poorest, a scheme directly raising the lowest incomes—for example, family allowances—would be incomparably more effective and just.[2] The significance of the adopted policy of food subsidies is thus to be seen in its more indirect economic ramifications. Universally apparent price stability for essential commodities is politically expedient and may therefore have an important bearing upon Labor's attitude toward the wages question and hence upon the possibility of limiting secondary price inflation.

As revealed by the Chancellor of the Exchequer in the House of Commons on January 31 and February 8, 1940, food prices during December and January were being subsidized, largely in the form of trading losses incurred by the Government, at a rate of roughly £1,000,000 a week, and present expenditure for this purpose may be estimated at a rate of around £60,000,000 per annum. These subsidies, according to the Chancellor of the Exchequer, do not include any grant of public money paid on the basis of prewar decisions to assist farmers in regard to various branches of agriculture, such as milk, cattle and wheat.[3] The new subsidies include a weekly amount

[2] Obviously a given sum used to supplement the income of the poorest would benefit them more than if used to cheapen prices of some commodities bought by all and of others hardly ever bought by those most in need of assistance.

[3] Sir John Simon's statements in the debate of February 8, 1940, clarified some uncertainties that had arisen, in the House debate of January 31, as to which of all then paid grants and subventions were covered by the new subsidies. (Cf. Parlia-

of £480,000 to cheapen milling wheat and thereby holding the bread price at 8½d. per quartern loaf which, it is claimed, without subsidy would be 10d. A total of £235,000 per week is being paid to keep the price of milk to 1d. per quart, or 11 per cent, below what it would be if no subsidy were paid[3a] Home-grown meat is being subsidized at a rate of £320,000 per week, and the bacon subsidy is estimated at approximately £80,000.

It is claimed by the Government that, if the food index level at the outbreak of war is taken at 100 (September 1, 1939), the subsidies paid have prevented an increase of 8.7 per cent. In appraising this figure, it should be kept in mind, however, that the cost of living index in its present construction is only a very rough guide to an evaluation of the actual cost of living. The basis of the weights given to each item of food and other articles and services is a collection of family budgets in 1903/4, slightly modified in 1914. Later budget studies indicated a different distribution of expenditure by items, and with rationing that distribution is likely to be further altered. Moreover, the index covered families with an average number of 5.6 persons which today would be an unusual figure. Considering these qualifications it may be broadly assumed that, while the quantitative effect of the subsidies upon the cost of living index and its food component is as indicated, their effect upon the actual cost of living is of lesser degree.[4]

It would be premature to venture a final evaluation of the food subsidy scheme, since important extensions and modifications may be contemplated. Two major points of criticism, however, seem at any rate justified. The first is that the scheme is ineffective unless the broader economic point of view, on which the food subsidies as

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mentary Debates, House of Commons, Official Report, Volume 356 No. 17 and Volume 357 No. 21.)

[3a] As from July 1, 1940, the price of milk was raised from 3½d. to 4d. per pint to cover increased distributive costs. At the same time, however, the provision of free milk in schools was extended, and one pint of milk is being made available at 2d. per pint for every expectant and nursing mother and for each child under five not attending school. This allowance of milk can be obtained free if the income of the two parents is less than £2 per week (plus 6s per week for each non-earning dependent), or if the head of the household is receiving public or unemployment relief or a supplementary old age pension.

[4] This point was aptly illustrated by Mr. A. V. Alexander, now First Lord of the Admiralty, in the House of Commons Debate on February 8, 1940. "It is difficult to understnad why £25 million received by the Chancellor from the increase in sugar and tea duties mean a rise of only 2 points in the cost of living index, while his £50 million subsidies mean an index reduction of 12 points." (Parliamentary Debates, House of Commons, Official Report, Volume 357, No. 21.)

adopted by the Government appear intelligible, is actually applied as part of a comprehensive policy in time of war. Secondly, it is not certain that the benefit of the subsidies falls where most needed. Available factual information is not sufficient to permit an appropriate evaluation of this point, which is complicated by the requirement of fair prices to domestic farmers at a time when agricultural production must be stimulated. It is apparent, however, that some inequalities have resulted from the payment of subsidies for home-produced grades only, while imported grades are exempt. This is the situation obtaining in the case of meat. As a result, prices of imported meats, which are usually bought by the lower income classes, have risen considerably more than prices of the more expensive home-grown meat, which is more widely consumed in medium and higher income groups.

Past Price Trends

Since the outbreak of war wholesale and retail prices of agricultural products in the United Kingdom, which are greatly affected by the trend of import prices, have risen substantially, but the increase has slowed down in recent months. The initial rise was considerable, reflecting as it did not only the depreciation of sterling, the increase in freight and insurance rates and taxes and other costs occasioned by the outbreak of war, but also the temporary speculative spurt in world markets. Meanwhile, world prices have somewhat declined; better organized shipping policy, and important acquisitions of mercantile tonnage as a result of war developments, reducing Britain's dependence on more expensive neutral freight space, eliminated a proportion of the previous increase in average freight rates; and general price control, rationing and subsidies for essential foods have come into being. These factors have contributed to slowing up the increase in general prices, which initially was boosted by price-raising factors of a non-recurring or at least discontinuous nature. While by December 1939, compared to August, wholesale prices in the United Kingdom as per "Economist" index had risen 31.7 per cent (in the United States, according to Department of Labor index, 5.6 per cent), from December 1939 to August 1940 there was a further increase of only 8.3 per cent of the August 1939 level. (See table top p. 687.)

Cereals and meat, much affected by import prices and higher prices for domestic farmers, to January rose more than the combined index; and textiles, with almost wholly imported raw

UNITED KINGDOM: "ECONOMIST" INDEX OF WHOLESALE PRICES

End of month	Cereals and meat	Other foods	Textiles	Combined index
1939				
August.....	100	100	100	100
October.....	121.0	128.1	125.5	119.0
December....	135.4	130.5	151.8	131.7
1940				
February....	130.4	133.4	140.9	131.3
August.....	139.6	133.4	169.6	140.0

materials, have risen most throughout the year.

British retail prices and cost of living showed a similarly broken trend, but of course a smaller percentage rise because of the rigidity of a considerable number of price groups. The Ministry of Labour's cost of living index, rather understating the increases that have occurred, showed a rise by 11.6 per cent between September 1 and December 1, 1939, but to August 1, 1940, a further rise of only 7.7 per cent of the September 1 price level, giving a total of 19.3 per cent.[5] The food component of this index, which had risen 13.8 per cent to December 1, 1939, remained stable to January 1, 1940, as a result of the subsidization embarked upon in December. To August 1, 1940, there was a further rise by 5 per cent on the September 1 level. Retail prices of clothing, as per the Ministry of Labour's cost of living index, have risen by the substantial figure of 40 per cent compared to September 1, 1939—18 per cent to December 1 and to August 1 another 22 per cent of the September 1 level. Had there been no food subsidies, no price control supported by a strong feeling not only among the public but also among respectable producers and retailers against rising prices, basic costs of living would have advanced much more than they actually did.

UNITED KINGDOM: MINISTRY OF LABOUR'S COST OF LIVING INDEX

Date	Food	Rent (incl. rates)	Clothing	Fuel and light	Combined index (incl. other items)
Sept. 1, 1939.....	100	100	100	100	100
Dec. 1, 1939.....	113.8	100	118.1	106.8	111.6
March 1, 1940.....	116.7	100	128.9	112.3	115.5
May 1, 1940.....	115.2	101.2	135.0	114.0	116.1
July 1, 1940.....	121.7	101.2	139.0	116.0	120.6
Aug. 1, 1940.....	118.8	101.2	140.0	116.0	119.3

[5] Of the increase since September 1, 1939, about 2 per cent are due to the increases in taxes on sugar, tobacco and cigarettes.

The Outlook

As to the probable future price trends in the United Kingdom prospects are for further increases in retail prices, including prices for foods and other essential commodities. The extent of the rise will naturally depend on a great number of factors and magnitudes which it is impossible to estimate with reasonable accuracy. It does seem possible, however, to give some minimum increase estimates, based on assumptions of such conceivable behavior of those factors as would tend tend to hold prices to the lowest possible level. The assumptions, theory and methods applied in arriving at these estimates are rather technical in nature and their exposition is not considered suitable for inclusion in this article. They are predicated on the basic contention that it is roughly possible to estimate (1) the magnitude of war expenditure; (2) the probable physical increase in domestic production and therefore national income; (3) capital consumption, that is, a draft on currency reserves and foreign assets, including possible borrowing abroad, as well as depletion of physical capital at home; (4) required restriction of current consumption as a resultant of the relationship among (1), (2) and (3), and the probable distribution of such restriction over various broad classes of consumer goods and services; (5) rates of taxation and saving.

An attempt also has been made to allow for the possible effects of price control. Price control is effective if it holds prices, or some prices, below the level they would otherwise attain; and the control is technically sound if it does not inflict upon people whose productive services society requires, and cannot otherwise commandeer, losses or income reductions that would make them cease to give those services to the required extent. Price control, thus effective and sound, can do one or more of four things: (a) It can reduce or hold prices by curtailing producers' and middlemen's rates of remuneration and incomes, thereby also reducing or holding total money spending power and therefore the general price level. (b) It can reduce prices in some sectors, through subsidization, and recover the subsidies from increased indirect taxation or borrowing, thus raising prices in other sectors; or from increased direct taxes reducing "real buying power" vis-a-vis non-subsidized goods. (c) It can keep prices from rising in some sectors, thereby diverting purchasing power to, and reinforcing the price increases in, other

sectors. (d) If in the case of an accruing general "surplus of spending power"—that is, increased money spending power coinciding with curtailed consumer supplies—price control, supported by physical rationing, is rigidly extended to a great many or perhaps all goods and services, there can be only little or no diversion of money. Such a course would therefore amount to forcible neutralization of buying power or a kind of "forced saving." In the estimates given hereafter tendencies (a), (b) and (c) have been taken into consideration, while in respect of (d) considerable increases in the rates of saving have been assumed as likely to result from moderately inclusive price control and various means of physical allocation of the national income. The estimates do not contemplate any comprehensive scheme of "compulsory saving" or "deferred pay" such as J. M. Keynes proposed.[6] There are still other factors that must be considered in a calculation of minimum price levels. Increases in money rates of remuneration and import prices which have taken place so far—10 to 15 per cent and 30 to 40 per cent, respectively, compared to 1938–39—must be assumed to be the war-time minima.

Minimum price increases have been estimated for a year of fully developed war effort, as compared with the financial year 1938–39 as a convenient "prewar" period. All commodities and services consumed have been grouped into three distinct classes, (a) essential foods and other first order necessaries, (b) non-essential commodities, and (c) services, including rents and government-produced services. A weighted index for groups (a) to (c) is taken to be a fairly representative measure of changes in the cost of living. This composite index should show larger increases than the official Ministry of Labour cost of living index. No grouping has been possible so as to parallel the Ministry of Labour's component groups of its cost of living index. However, group (a) in the table below should be fairly comparable to the component "Food" in the Ministry's index, though war-time increases in group (a) index will tend to be somewhat larger than in the Ministry's food index. (See table p. 690.)

The minimum increase in the cost of living during a year of fully developed war effort has thus been estimated at from 35 to 40 per cent above 1938–39, that for essential foods at from 23 to 26 per

[6] J. M. Keynes, How to pay for the war, Macmillan, London, 1940.

MINIMUM ESTIMATES OF RETAIL PRICES AND COST OF LIVING FOR YEAR OF FULL WAR EFFORT COMPARED TO 1938/39 (PREWAR)

Group	Pre-war	War-period	War-period when Pre-war = 1	Actual ministry of labour index		
				Group	Prewar*	Aug. 1, 1940
Group A: Essential foods and other first order necessaries	1.053	1.29–1.33	1.23–1.26	Food	1.00	1.19
Group B: Non-essential commodities	1.228	1.90–2.00	1.55–1.63	—	—	—
Group C: Services, incl. government-produced	0.786	0.93–0.96	1.19–1.22	—	—	—
Cost of living.....	1.00	1.35–1.40	1.35–1.40	Cost of living	1.00	1.19

* "Prewar" (1938–39) and September 1, 1939, price indices were approximately identical.

cent. To August 1, 1940, these increases have already been around 19 per cent, according to the Ministry of Labour Index which, as was pointed out in the foregoing, rather understates the rise. It should be observed that in conditions such as Great Britain faces at the present time estimates of this kind may only be remotely realistic. There may be developments which would relegate into oblivion considerations of economic and social policy such as we have come to regard as important even in times of emergency, and which are the basis of any rational calculations.

On balance, present prospects seem to point to developments that would raise prices above the calculated minima. However, it should be of some interest to note that, on the physical assumptions made, even without the adoption of a comprehensive scheme of compulsory saving or prohibitive "small income" taxation the further rise in the cost of living and of foods in the United Kingdom could be held in relatively narrow bounds—provided that it is possible to prevent further increases in average wage rates and margins and to hold sterling import prices to or below their present levels. Yet, of course, substantial inflation would be there—to the extent required to adjust the monetary magnitudes of the economy to the physical size and allocation of the national income. This physical size, under war-time conditions, is predetermined by the war requirements and not as normally in itself largely a function of the monetary factors.

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DEMOCRATIC TELESIS AND COUNTY AGRICULTURAL PLANNING

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AGRICULTURAL planning, since the Mount Weather Conference, seems likely to become the broadest attempt at rational societal control the United States has witnessed. Unlike the National Resources Planning Board, and even the NRA, the new program is not limited to control and direction of development within a single institutional framework. Agricultural planning is unquestionably conceived, in its ultimate design, to develop an American rural social structure, not merely rural economic reform.[1] Obviously the efforts of planners have not been expended widely, as yet, on non-economic issues. At the present time, planning may be described largely by its increasingly less popular title "land use planning." This being the case, the sociologist might well clarify his role in present planning as well as in reference to projected institutional reforms. It seems quite sterile to insist that the role of rural sociology is simply the application of its stereotyped tools of community analysis and location, in the blind faith that the resulting "social facts" might hold value for planners. The sociological problems actually arising from the planning movement are much too significant to be shunted off in favor of the eternal urge to draw community boundaries, and gather virtually random "social facts."

In the following discussion three types of problems emanating from the agricultural planning movement are discussed. These are believed to hold direct relevence to the successful operation of the program.

Planning as an Instance of Social Telesis
(*Societal self-direction*)

The analytical literature of social change has for centuries been the battle-ground of ideologists and mechanists. The conflicts of Herbert Spencer and Lester Ward two generations ago brought the issue to what was perhaps its finest historical focus. Since that time,

[1] Long-time goals already specified include "an adequate standard of living, and permanent rural culture which includes . . . hospitalization within the reach of all . . . adequate educational facilities . . . adequate road facilities . . . religious institutions within the reach of all . . . recreational facilities for leisure time . . . " etc. See, County land use planning in Iowa (mimeo. prelim.), Iowa State College Ext. Ser. and BAE cooperating. July 1, 1940.

in spite of leanings toward the mechanistic interpretation of social development, sociologists, as well as economists, have participated in many efforts toward the rational control of social change. In some instances these efforts have been rationalized to a theoretic determinism by being themselves named the outgrowth of immanent historic processes. In other instances they have led to a revival of faith in social idealism and reasoned control of social development.

Certainly the events in Europe, if not in the United States, within recent years, have demonstrated that societal change, if not brought about through the willful devices of men, has at least been facilitated or modified by rationally applied techniques. It is, however, unnecessary to see in these events the separation of volitional and historical factors in change. It seems quite unnecessary to give up belief in the power of historic (multiple) causation when we see that rational controls have not proven abortive. We can find instead a reasonable hypothesis and one which must stand as a minimum assumption for any planning program, that is, that rational efforts may facilitate, retard, or modify spontaneous outgrowths of a given cultural context. This clearly implies that the nature of social trends cannot be disregarded for it is probable that the greater the correspondence of plans to trends the greater will be the chances of their attainment. Certainly the more divergent they are, the more stringent must be the controls exerted to achieve the teleological ends. There is, it is true, slight chance that democratically derived plans could be completely divorced from situational determinants. It is truly a matter for decision how far we may go against current trends, but whatever the decision, we should know the relationship of our plans to them.

If we may herewith grant at least the limited possibility of rational societal direction let us proceed to the consideration of the agricultural planning program in terms of the constituent elements in the telic process.

Social telesis, not mere reform but planning, necessitates first of all the recognition and definition of goals and the clear discrimination of them from the means by which they are to be achieved. This necessity is more urgent than the smooth recitations of planning committeemen and departmental spokesmen indicate. In planning a rural institutional complex, objectives, without regard to their degree of finality, are futile, for short-time objectives must be seen

not only as "desirable modifications" but also in their relationship to some more ultimate institutional pattern. At present the goals and objectives of planning offer untold confusion. Some "goals" are patently "means" to the attainment of some unspecified ends. Some "goals" are in fact short-time objectives which may or may not harmonize with long-time objectives which may more nearly represent the type of rural structure toward which efforts would be bent. This confusion lies largely in two factors: (1) the failure to distinguish means from goals, and (2) the failure to evaluate goals in terms of their consistency and integration with each other. No one, apparently, is concerned with evaluating the long-time objectives of planners in terms of the institutional patterns that would be postulated by their attainment.

Many societal goals must inevitably have their origins in value judgments and sentiments, not in the logical reasoning either of farmers or technicians.[2] The judgment of these ends, in a democracy rests upon the degree of congruence between them and the sentiments of the folk, and the application of "rational" standards to such ideals is the work of a technical charlatan or a conversionist. Means to the attainment of goals are of quite a different character. Means should be rationally conceived, and in their application logically conjoined with the end in view. The goal and its means of attainment are derived by different processes, the one sentimental and traditional, the other rational and economic. By the same token they are evaluable by different sets of criteria—the goal by its conformity with the sentiments of the folk—the means by the standard of economic feasibility.[3]

It may be argued that the objectives of planners are truly goals, but not goals in the sense of a final rural culture. This may be true, but if they are indeed goals, let us attempt to gain a picture of the type of culture which would emanate from them. Let us see them

[2] Under certain circumstances goals may offer the possibility of scientific evaluation, i.e., national defense. However, the form that a society takes is a product of sentiments and interests. A *good* social structure is one which fits the sentiments of the planner; it cannot be judged as either valid or invalid from an objective standpoint. For a clear distinction of goals holding objective utility for a society as a unit from goals holding utility for individuals within the society, see Vilfredo Pareto, The mind and society (translated by A. Livingston), 4: 1459 ff, and Talcott Parsons, Structure of social action, pp. 241–268.

[3] Some means may not be subject to economic criteria but the majority undoubtedly are. An exception might be found in the use of slogans to attain group action—a rational device from a sociological standpoint. The completely rational selection of means is, of course, an abstraction since even rational devices must be consistent with the culture in which they find expression.

integrated into an institutional pattern representing the essential aspects of the "permanent rural life" we seek. The striving after goals which are in fact short-time objectives (holding more of the element of means than of ends), can lead only to sterile reformism. It cannot lead to a planned rural society, and that is the evident purpose of planning work. The note of immediacy in planning is purposeless unless these aims are linked to a substantial integrated pattern of ends—and ends which are in some degree compatible with actual trends.

The confusion of ends and means in planning gives rise to additional problems having intense practical significance. The proper roles of the expert and the farmer cannot be defined until the spheres of competence of each can be recognized . . . , and they cannot be recognized at present. There is also the danger that the means of attaining goals be given an unjustified importance. Thus when an "objective" is fundamentally a step in the attainment of some more basic goal but is treated as a goal, it tends to be removed from the criteria of efficiency and economy. It may be given an unjustified sanctity as an objective and thereby forestall the search for alternate actions which might more efficaciously lead to the desired, but undefined, end. The necessity of some ideological yardstick may be illustrated by resort to actual planning recommendations.

Two widespread objectives may be cited, not because these are practically dangerous, but simply to illustrate the potentialities in current confusion. Soil conservation has become one of the most popular and esteemed of planning "objectives." Now in a program confined to resource husbandry, this may by definition become a goal, insofar as the movement is concerned. But County Agricultural Planning is concerned with much broader problems of rural living and has not been limited to any particular sphere. There seems no reason why we should not ask "Why soil conservation?" Is it that the good earth must be preserved—the expression of some heretofore covert sentiment deep in the heart of the good husbandman? Is it perhaps an objective because the maintenance of soil productivity is believed to be a foundation for efficient agricultural production? If we agree, and most of us probably shall, that something like the latter is indeed the case, soil conservation is simply a tool to the attainment of a goal, not a goal in itself. This quite obvious relationship has not been obvious to many proponents of

conservation who do not recognize the possible existence of alternatives in achieving the end specified. Perhaps such alternatives do not exist; perhaps even unlimited conservation is the most efficacious means of attaining the goal. However, it is unfortunate that conservation has not been sufficiently subjected to the criteria of economic analysis, having been hailed as unchangeable good.[4] This does not mean that conservation may be unwise, but some conservation may not be economic. As sociologists we may well be concerned over the sentimental aura being consciously attached to a presumably rational device. The goal inevitably assumes elements of the sacred, the untamperable. The confusion of the goal with the means through poorly directed thinking may well vitiate the ultimate attainment of true goals—if they indeed exist. Our criticism is not that planners have been too starry eyed in their discussion, rather that they have been led to regard an ameliorative technique as a goal of planning. Do we want conservation at whatever cost (as a goal) or do we want the costs of conservation analyzable and analyzed. The uncritical assumption that conservation is an essential element in all rural life may fit a new ideology, or it may not; but frequently it may prove costly under many circumstances, if efficient farm operation also is a goal. The real danger in sanctifying such a technique is in the corresponding tendency to cease viewing it critically, that is, as a device to be applied under specific determining circumstances and not an overall objective for which other plans would be sacrificed.

A second example of quite a different character is represented by the "family size farm" concept, so frequently cited favorably, by corn belt planners. It is difficult to determine whether planners are viewing this from an ideological standpoint or simply as a hoped for means to greater economic advantage. The real meaning is important. If the family size farm is an ideological entity—a good life—let us offer no criticism as scientists, but rather ask, "Do you really mean it?" For a family size farm, in the Corn Belt, has not been the most evident ideal toward which many operators as individuals have been striving.[5] Now if this recommendation does not represent

[4] It is precisely this fallacy that has been exposed, from the standpoint of economic theory, in: Arthur C. Bunce, Time preference and conservation, JOUR. OF FARM ECON., August 1940. Unquestionably the concept of "social time preference" which he refutes, is a product of the process described here.

[5] For a brief but excellent analysis of the American backgrounds of agricultural fundamentalism and liberalism see Paul H. Johnstone, On the identification of the farmer, Jour. of Rural Sociology, pp. 32–45. March, 1940.

a basic goal, but simply an "objective" by which farmers would increase their income—or something else—let us be wary. Here the concept is suspect, not on the grounds of unconscious insincerity, but on the grounds of economic inadequacy. Perhaps under certain circumstances this plan may yield desired effects. Let us be sure, however, that it is not an inefficient means to those effects, hallowed by the false application of ideological terminology. Just as the familism of the orient is not subject to criticism in terms of occidental values, so the family size farm, as an ideology, is removed from the critical view of technicians. If it is not an ideal, but a panacea, its efficiency should be evaluated, and substitute means of attaining given goals considered. The expert is helpless until goals are clarified.

The Cultural Consequences of Planning

In any society possessing some degree of integration, and probably every society must for survival, it is inconceivable that major modifications in certain institutions will not have repercussions in others. This also applies internally to single institutions when one element is affected. The problem of multiple effects from apparently simple changes is especially acute in a program of a non-revolutionary character since there is no period of rapid upheaval preparatory to the inauguration of a new integrated system. When modifications are partial and immediate goals refer to a selected segment of life, that is economic, the attainment of these goals will inevitably be reflected in institutions such as the family, the school, the recreational system and government, insofar as these are functionally related to economic activities.

For this reason a most significant field of sociological inquiry lies in the study of the institutional consequences of current proposals. This is strictly a technical problem, in the same sense as is the evaluation of means a technical problem for the economist. Inability to foresee the consequences of pursuit of single goals is one of the greatest threats to the establishment of an integrated system of agricultural life, once that system has been conceived. The achievement of an economic end may well initiate a new and unexpected problem in other spheres. This has been, and is, the bane of social reform, for unstudied changes in social structure have had so frequently paradoxical effects. Under ideal conditions, with an integrated system of ends developed covering all aspects of rural life, this danger would be minimized—(except in reference to urban

institutions), but such an ideally organized system, and the revolution it would entail, is not likely to spring full blown. Planning will be a gradual process and thereby attended by the dangers that beset all reform. True, there must be a more precise definition of "the permanent agriculture," before unforeseen consequences may be evaluated, but barring a perfectly integrated program the paradox of reform cannot be lacking.

Probably the most obvious example of this inter-institutional working is in proposals affecting the distribution of population. Planners have in the past seen the need for larger or smaller farms, —we may suppose upon valid economic grounds—but the demographic problems created might well have been more serious than the conditions alleviated. The effects do not stop here but reach into the functioning of schools, churches, and other local institutions. The difficulties in modifying population distribution have been demonstrated frequently and need not claim further attention here. However, within current planning proposals it is quite possible that as serious consequences will arise through more subtle processes. We might well ask what will be the effects of democratic planning itself upon the class and caste structure in the south; the influence of a family farm concept upon urbanward migration; the efffects of tenant-purchase programs upon a modified plantation system.

Successful tampering with a mechanism of such delicate strains and balances as a cultural system means more than the attainment of specific limited ends. It implies a recognition of the consequences of any single act. The watchmaker who would change the size of the cog without recognition of its fittings is simply a bad mechanic—what more is the social scientist who condones similar "rational" modifications in culture without inquiring into secondary and even final effects.[6] Here, surely, is one task for the rural sociologist quite as worthy as drawing the approximate boundaries of rurban communities.

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[6] This type of forecasting is not without some empirical and theoretical basis, and may not be hopelessly idealistic. We are not, however, assuming that this type of planning is, or is not, possible; what we are saying is that the hopes attached to planning must be greatly diminished or the problem of inter-relationships in culture must be faced. The impetus toward cutlural anthropology in the Department of Agriculture possibly signifies an embryonic recognition of the unity of culture. Unfortunately it will probably take the cultural anthropologists same time to develop empirical sociological data on western civilization and probably longer to bring forth an adequate theoretic literature on culture integration and social change. The rural sociologist should stand ready to acquaint the leaders of this movement with the principle analytical work on culture integration and change, as well as to make known to them the available descriptive literature.

Planning and Community Organization

The one point of most basic insistence in the inauguration of county agricultural planning has been faith in democratic spontaneity in program planning and action. "Democracy," writes a spokesman of the Department of Agriculture, "is government by the people who seek the aid of experts. It is upon this philosophy that the Department of Agriculture and the Stage Colleges of Agriculture are attempting to build agricultural planning."[7] Fundamentally the success of such a venture, based upon this ideology, rests upon the fact of truly democratic representation on local committee. That is, county planning committees may or may not, in their entirety, display the best intelligence the county may offer; they may or may not display the most progressive and liberal thought, but they must display farmer sentiment. Granted, that this without leadership ability is insufficient, it is fundamental. May we not add that if planning for a permanent agriculture via the democratic process is to become a fact, not a political expedient, there must be represented differing ideologies of farm life, and local prejudices against, as well as for, current programs.

Little precise information is available regarding the functioning of the democratic process in committee selections. The more cynical may suggest that within counties of their knowledge the democratic process has been guided, consciously or unconsciously, by government officials. Certainly nothing is more clearly evident than that committeemen must adequately represent community thinking and not the thinking of a selected élite, if planning is to be more than a back-drop for bureaucratic dictation. This will become progressively truer as the concept of "the permanent agriculture" reaches definition.

Thus a primary point of departure for the community analyst lies in the study of divergent ideologies and sentiments on issues basic to agricultural formulations. Let us learn of significant cleavages, and see that they are represented, that our planning does not lapse into "planning for a permanent Farm Bureau" nor yet "planning for a permanent New Deal." Representation should be made in spite of apathy among some farm groups, for the inarticulate are as much a part of the rural culture as are the leaders in rural reform. It should be recognized that the insistence upon such a re-

[7] Planning for a permanent agriculture, Misc. Pub. 351, U.S.D.A., p. 10.

search objective assumes the significance of traditional factors in the framework of planning. There can be no doubt of the validity of this assumption if only in reference to the ultimate goals toward which plans are oriented. To be sure, if planning is to mean nothing more than the local administration of bureaucratically determined policies, the problem of local representation will be quite different. But it is our necessary conviction that "the people" must themselves outline the type of rural order they seek; policy formation in the broadest sense. The neglect of this function by farmers means simply the vitiating of the primary function of the folk in democratic telesis.

It is strange that in the discussion of rural planning little or no attention has been given the role of the city man. So far in this discussion we have tacitly accepted the assumption that rural planning is a function of the farmer, but surely this warrants qualification. Whereas, it is justifiable in an abstract sense to refer to a "rural culture," practically the separation of rural and urban cultures in America is a myth. The urbanite does have a stake in agricultural planning unless we accept the uncritical cliché that "What helps agriculture helps business and labor."[8] Rural planning on a significant level cannot proceed democratically if we assume that America possesses rural communities in the strict sense. The American farmer lives in a "rurban community," and is in fact a minority group within that sphere. Rural planning by farmers alone, in a democracy, assumes either an identity of agricultural and urban interests, the insignificance of urban interests, or a non-existent disjunction of rural and urban cultures.

The attainment of planning committees composed of truly representative leaders, does not guarantee that even democratically derived programs can be translated readily into action. Unless the unified program is to proceed upon a costly farm by farm, case work, basis, it will probably be necessary to utilize existing channels of county or community interaction. In this problem of inspiring the apathetic and of inducing action, it may well be that purely structural analyses of community organization may prove help-

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[8] The illusory character of this slogan has been suggested by A. G. Hart, in Proceedings of the Fourth Annual National Farm Institute, Des Moines, p. 56. Feb. 23–24, 1940. For an extensive critique of this general dogma see especially chapter two in Joseph S. Davis, On agricultural policy, 1926–1938, Food Research Institute, Stanford University, 1939.

ful.[9] This task would involve the delineation of community and neighborhood areas in terms of their dominant systems of relationship. With the location of these basic association patterns, which may differ widely between counties, it would become the task of the extension sociologist to bridge the gap between planning and action by means of these pre-existing patterns of relationship. This utilization of existing community relationships may prove less expensive, and perhaps more effective, than the creation of a new organization designed to encompass all operators, linking them to planning representatives.

As an additional element within this task of facilitating action, local leadership also may be analyzed in terms of influence within the relationship systems already demarked. That is, we shall locate rural communities, but locate them in terms of cohesion, not in terms of diverse factors unrelated to the attainment of united agricultural action. Leadership at this stage must be found, not in reference to representativeness nor thoughtfulness, but in reference to personalities capable of translating plans into community action.

A research problem which is the converse of the above, lies in the analysis of community factors which may potentially retard the program. Local conflict situations not only between agricultural groups, but also between farm and town, may be studied fruitfully, if this study leads to the development of accommodative devices. It is surely evident that non-rational tensions, even those apparently unrelated to agricultural issues, may afford affectual pre-conditioning regarding unified agricultural action. Basically the analysis of traditional elements in community organization involves the study of the very factors which have been responsible for the preservation of irrational patterns in agricultural practice. The slowness of farmers to accept new rational patterns of behavior is a problem which cannot be solved in economic analysis. Its solution lies in the realm of tradition, cultural persistence, and in the factors, both objective and subjective, vivifying them.

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[9] There is no intent to deal here with the problems of social control created by planning; these are issues not amenable to summary treatment.

CROP-YIELD INDEX NUMBERS

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CROP-YIELD index numbers seem to have escaped the attention of statisticians. This is unfortunate. For statisticians it is unfortunate because crop-yield index numbers provide an interesting example of the use of index numbers—an example where the peculiar problems involved make it undesirable to apply without modification the forms of index numbers which are generally satisfactory in the construction of indexes of prices and of quantities. For workers in Farm Management and allied fields it is unfortunate, for the form of crop-yield index which is almost universally used gives badly biased results.

Crop-yield index numbers are widely used to compare yields of a number of crops on a given farm with the average yields of the same crops on another farm or on a number of farms. They are also used in year-to-year comparisons to relate the yields in a given year to the yields in some other "base" year or period of years. Such crop-yield index numbers consequently are summary numbers intended to indicate how the yields of several different crops vary on the average, between farms, between geographical areas, or between years.

The form of the usual index number may be indicated by the following quotation. "The method used in finding the index of crop yields of a given farm is as follows: The quantity of each field crop produced on the farm is divided by the average yield of that crop per acre on all farms (all farms used as the basis of comparison), and the quotients obtained from these divisions are added and their sum divided by the crop area of the farm."[1]

A simple hypothetical example will help to make the method clear. Suppose that for a certain study the acreage and yields on Farm No. 1 and the average yields were as given in columns 1, 2, and 4 of table 1. The number of acres for each crop and the total acreage necessary to obtain the production of Farm No. 1 at average yields would be as given in column 5. The crop-yield index would then be the percentage which the area necessary at average

[1] Tentative report of the committee on Farm Management Terminology of the American Farm Economic Association (1937), a report mimeographed by the United States Department of Agriculture, p. 19.

TABLE 1. COMPUTATION OF CROP-YIELD INDEX BY USUAL METHOD

Crop	Farm No. 1			Average yield per acre of all farms	Area necessary to produce crops of Farm No. 1 at average yields
	Area	Yield per acre	Production		
	(acres)	(bushels)	(bushels)	(bushels)	(acres)
Corn.....	120	80	9,600	40	240
Wheat.....	40	10	400	20	20
Oats.....	80	10	800	20	40
Total.....	240				300

$$\text{Crop-yield index} = 100 \times \frac{300}{240} = 125$$

yields is of the area actually used on Farm No. 1. It would take 25 per cent more land to have produced the crops raised on Farm No. 1 at average yields.

The foregoing explanation presents the usual crop-yield index as a ratio of acreage aggregates, but it may also be looked upon as a weighted arithmetic average of relative yields. If we use a formula corresponding to the usual formulae for index numbers of prices, but in which "y" refers to yield per acre and "a" refers to acreage, we may express it as:

$$\text{Index of crop yields}^{2} = \frac{\Sigma\left(\frac{y_1}{y_0} \times a_1\right)}{\Sigma a_1} .$$

Anyone familiar with index numbers will immediately recognize this as a weighted arithmetic average of yield relatives in which the weights are the acreages of the "given year" or "given farm." Furthermore it will be apparent that the index has an inherent bias.

In the example calculated above an index of 125 was obtained—that is, according to the index, the yields 80, 10, and 10 are 25 per cent higher than the yields 40, 20, and 20 when weighted by the acreages given. Suppose, however, we reverse the comparison, assuming that for some other area the average yields are 80 bushels for corn, 10 for wheat, and 10 bushels for oats, whereas for Farm A they are 40, 20, and 20 bushels respectively. The calculation is then as presented in table 2.

[2] The subscript 1 refers to the "given" farm or year, whereas the subscript 0 refers to the years or farms used as a basis of comparison.

TABLE 2. COMPUTATION OF CROP-YIELD INDEX BY USUAL METHOD

Crop	Area	Yield per acre	Production	Average yield per acre of all farms	Area necessary to produce crops of Farm A at average yields
	(acres)	(bushels)	(bushels)	(bushels)	(acres)
Corn.....	120	40	4,800	80	60
Wheat.....	40	20	800	10	80
Oats.....	80	20	1,600	10	160
Total.....	240				300

$$\text{Crop-yield index} = 100 \times \frac{300}{240} = 125$$

In this case, then, we get a result indicating that the yields 40, 20, and 20 are 25 per cent higher than the yields 80, 10, and 10. The result is altogether contrary to the one obtained previously in spite of the fact that the weights were identical in both cases. Obviously the method used is not satisfactory. Nevertheless it is the form of index almost universally used wherever crop-yield indexes are computed. The fact that some use "productive man work units" in place of acreages does not in any way alter the biased nature of the index.

It is to be recognized that the foregoing hypothetical example is an extreme one and that the bias involved is not ordinarily so great. The bias is nevertheless serious in actual practice as may be illustrated by a comparison of crop-yield indexes for Madison County, Illinois. Using county figures (as estimated by the Crop Reporting Service) for acreage and yield of corn, winter wheat, and oats, four different indexes were calculated for the five years 1931 to 1935 inclusive. The identical method was used in each case, the only difference being in the year used as the denominator of the yield relatives. The results are shown in table 3.

TABLE 3. CROP-YIELD INDEXES,* MADISON COUNTY, ILLINOIS

Year	(1) (1931=100)	(2) (1932=100)	(3) (1933=100)	(4) (1934=100)
1931.....	100.0	110.7	204.7	218.1
1932.....	102.6	100.0	213.5	260.1
1933.....	52.2	60.0	100.0	108.2
1934.....	58.3	74.9	110.8	100.0
1935.....	81.3	87.2	163.8	185.0

* These indexes are all weighted averages of the yield relatives, the weights being acreages in the given years.

$$\text{Index} = \Sigma[y_1/y_0\,(a_1)]/\,\Sigma a_1.$$

It will be seen that we obtain an index for the year 1932 of 102.6 when 1931 is used as a base. If, however, we calculate the index with 1932 as a base, yields in that year appear to be about 10 per cent lower than in 1931. It is obvious from these results that this usual method of constructing crop-yield indexes gives seriously conflicting results in actual problems as well as in the hypothetical case first set forth.

But what would be a satisfactory form of crop-yield index number? Probably the first reaction of most statisticians would be to follow the pattern of price index numbers. When a simple, easily computed, and yet generally satisfactory price index number is desired, it is the usual practice to use the weighted aggregative. According to the usual notation this is expressed as:

$$I = \frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} .$$

A corresponding index of crop yields, in which yield per acre replaces price and acreage replaces quantity, could be computed. This index may be represented by the formula:

$$I = \frac{\Sigma y_1 a_0}{\Sigma y_0 a_0} .$$

Unfortunately this is not a satisfactory solution. The index would be the ratio between two aggregates, but each of the aggregates would be a sum of things which ought not to be added together. There is no sound basis for adding together the products of yields and acreages of different crops, for the yields are expressed in terms of differing units. The situation is bad enough even in the case of such commodities as corn, wheat, and oats, for a bushel is not comparable between them. But consider an index which includes hay expressed in tons and cotton in bales. A summation made up of bales of cotton, tons of hay, and bushels of corn has no clear meaning.

It would be possible to express the yields in terms of some common denominator such as pounds per acre. This would be some improvement if the crops included were only grains and hay, but it would be far from satisfactory to add pounds of grain and hay to pounds of cotton.

In view of the difficulty of weighting, one alternative would be to

use an unweighted index. As in the case of price and quantity indexes, the only form of unweighted index which avoids bias is the geometric mean of the relatives. It is consequently the one type of unweighted index which deserves consideration.

The fact that a simple geometric crop-yield index would give equal importance to each of the crops is, however, a serious disadvantage. Some crops are of far greater importance in the farm economy than others. Furthermore the small number of crops grown on each farm makes a sound system of weighting almost imperative. In price index numbers which include anywhere from 100 to 800 commodities it may make comparatively little difference what weights are used. But in crop-yield index numbers we are likely to be limited to from 3 to 10 crops. With such a limited number of crops, differences in weighting make large differences in the resulting index, and the need for a sound system of weighting is especially great.

Any decision as to a system of weighting should be made in the light of the purposes for which the index is to be used—in the light of what things should logically affect the index. It is obvious that in the heart of the Corn Belt where wheat is an unimportant crop it is not so vital to a farmer's success that his wheat yields should be high as that his corn yields should be high. Again in central Kansas, whether wheat yields are high or low is far more important than whether corn yields are good or poor.

Acreage weights are no doubt intended to take into account differences in the relative importance of crops, but are they the most satisfactory method of doing so? Should "high value" crops have the same weight per acre as "low value" crops? To take an extreme example, suppose we consider a farm on which potatoes constitute the main source of income, but on which the acreage of potatoes is less than that of either alfalfa or wheat. Is not the yield of potatoes then more important to the success of the farmer than the yield of alfalfa or wheat? It would also seem to the author that on a Corn Belt farm whose corn acreage is twice that of oats, the yield of corn would be more than twice as important as the yield of oats because the value of an acre of corn is much more than that of an acre of oats.

In view of these considerations the per acre value of the various crops should be taken into account as well as the area on which they are grown. This may be done if we weight the yields not in pro-

portion to the area of the crop, but rather in proportion to its value Such an index number would be:

$$\frac{\Sigma\left[\frac{y_1}{y_0} \times (y_0 a_0 p_0)\right]}{\Sigma(y_0 a_0 p_0)}.$$

The notation is the same as that used above, with the addition that p_0 represents a typical or average price of the crops. This reduces to the simpler, but identical, weighted aggregative index:

$$\frac{\Sigma y_1 a_0 p_0}{\Sigma y_0 a_0 p_0}.$$

This sort of aggregative in which the yields are multiplied by constant acreages and prices should, I believe, prove to be the most generally satisfactory form of crop-yield index number. It is easy to compute, is easily understood, and is as thoroughly sound as the usual weighted aggregative index numbers of prices. The symbols given above have the following meanings:

y_1 = yield on the given farm or in the given year
y_0 = standard yield which is the basis of comparison
a_0 = standard acreage
p_0 = standard price

The standard yield, acreage, and price are constant figures for each of the farms or years which the index compares. In case of an index which compares yields on individual farms in a given year, they might well be the averages for all the farms in that year. The crop-yield index would then measure yields weighted in the light of the acreages and prices prevailing in that year. If, on the other hand, it is desired to weight the yields in the light of "normal" areas and prices, average prices and acreages over a period of years should be used.

The method of constructing the index will perhaps be clearer if an example is given. Suppose we wish to obtain crop-yield indexes for certain farms in Tazewell County, Illinois, from data concerning the yields and acreage of corn, wheat, and oats in that county. The yields on one of the farms (Farm No. 1), the county average acreage and yields, and state average prices were as shown in table 4.

TABLE 4. DATA FOR COMPUTING CROP-YIELD INDEX ON TAZEWELL COUNTY, ILLINOIS, FARM NO. 1

Crop	Yield per acre		Acreage, county average (a_0)	Price per bushel (p_0)
	Farm No. 1 (y_1)	County average (y_0)		
Corn	40.3	39.1	68.6	.79
Wheat	31.0	18.6	19.1	.85
Oats	26.0	15.3	34.8	.43
Total			122.5	

The first step is to obtain the products of county average acreages times the prices of the different crops. These are shown in the first column of table 5.

TABLE 5. METHOD OF COMPUTING CROP-YIELD INDEX ON TAZEWELL COUNTY, ILLINOIS, FARM NO. 1

Crop	Weights (a_0p_0)	Values	
		At average yields ($y_0a_0p_0$)	At yields of Farm No. 1 ($y_1a_0p_0$)
Corn	$54.194	2118.99	2184.02
Wheat	16.235	301.97	503.28
Oats	14.964	228.95	389.06
Total		2649.91	3076.36

$$\text{Index, Farm No. 1} = 100 \times \frac{3076.36}{2649.91} = 116.09$$

These are then multiplied, first by the county average yields, and then by the yields of each farm for which an index is to be computed. The crop-yield index for each farm may then be computed by finding the percentage which the total of its column is of the total of column two.

As indicated before, it is believed that the type of index number computed above is the best "general purpose" index number of crop yields. For certain purposes, however, when comparisons are between farms, it may be better to use given farm acreages rather than the standard or average acreages. If the topography and soil characteristics of a given farm, or the peculiar abilities or predilections of the farmer operating it result in that farm's growing twice

as large an area of wheat relative to other crops as do most farms, whether wheat yields are high or low on that farm becomes of correspondingly greater importance to that farm. This may be taken into account by using the formula:

$$\text{Index} = \frac{\Sigma y_1 a_1 p_0}{\Sigma y_0 a_1 p_0} .$$

It should be noted, however, that if this index is used, two different farms with precisely the same yields for each crop may have different crop-yield indexes if their acreages are not the same. This is an inescapable concomitant of using different weights for different farms. A further disadvantage is that computing this form of index involves almost twice as much work as does the index with constant weights, since a new denominator must be computed for each farm, whereas in computing the index with constant weights the same denominator is used for all the farms.

Still another possibility would be the use of both acreages and prices of the given farm as weights. This would have the same drawbacks as those mentioned above. Furthermore it is quite likely that the differences in prices between farms in any single year will depend more upon chance than upon any characteristics which are inherent in the farms or farmers themselves.

Inasmuch as the past practice of most people using crop-yield index numbers has been to think in terms of weighting either by acreages or by man work units, it may be well to give some further attention to the question of what other forms of index numbers might be used with such weights. It has been shown that the use of these weights in an arithmetic average of yield relatives is unsound. Furthermore, since only a very small number of crop yields are used, it is out of the question to adopt median or modal yield relatives. The harmonic mean of the relatives has a bias fully as great as the arithmetic mean, though in the opposite direction. The remaining alternative is consequently the geometric mean of the yield relatives. Mathematically it is perfectly feasible to use either acreage or man work units as weights, but since the principles involved are the same, and in order to shorten the discussion, only the use of acreage weights will be discussed in what follows.

The acreages used as weights may be either constant or varying. In the former case they would presumably be the average or some

other typical acreages, whereas the varying weights would be the acreages on the given farm or in the given year. The constant weight index may be expressed as:

$$\text{Logarithm of index} = \frac{\Sigma\left(\log\frac{y_1}{y_0}\right)a_0}{\Sigma a_0}.$$

The varying weight index, on the other hand, would be:

$$\text{Logarithm of index} = \frac{\Sigma\left(\log\frac{y_1}{y_0}\right)a_1}{\Sigma a_1}.$$

Aside from the questionable logic of using acreages as weights, the results of such indexes would be generally satisfactory. The principal difficulties are the labor of computation and the difficulty of explaining the index to farmers. It should be noted, however, that in the event of a crop failure (yield of zero) on any farm, the entire index becomes zero. This difficulty is not overcome by leaving out of account the crop for which there was a failure on those farms having no yield, for we would then get a higher yield index on a farm with a crop failure than on a farm with a small yield, all areas and all other yields being the same on the two farms.

Where it is desired to take account of both the typical acreages and the given farm acreages in weighting an index, the purpose may be accomplished in a variety of ways. The results will, of course, vary somewhat according to the type of index used. Probably the best index of this sort would be one which corresponds to Irving Fisher's "Ideal" index number of prices. It may be expressed as follows:

$$\sqrt{\frac{\Sigma y_1 a_0 p_0}{\Sigma y_0 a_0 p_0} \times \frac{\Sigma y_1 a_1 p_0}{\Sigma y_0 a_1 p_0}}.$$

Generally speaking, such an index number is subject to the same advantages and the same disadvantages as is Fisher's "Ideal" index number of prices. It would seem to provide the best possible comparison between the yields of two farms when each farm's acreage is of equal significance for weighting. It has the disadvantage of being an "equivocal" index number, in that it is not a measure of

yield differences alone, but is also influenced by acreage differences.

If it be desirable to use given farm prices as well as areas, one may of course use these in the following manner:

$$\sqrt{\frac{\Sigma y_1 a_0 p_0}{\Sigma y_0 a_0 p_0} \times \frac{\Sigma y_1 a_1 p_1}{\Sigma y_0 a_1 p_1}}.$$

In order to compare the differences in results which may be obtained in actual practice by the use of different forms of crop-yield index numbers, data for 11 farms of Tazewell County, Illinois in 1934 have been used. No special selection of farms was made for that purpose. These 11 farms represent all the Tazewell County farms which were currently being used in a study of farms for which the Department of Agricultural Economics, University of Illinois, had obtained accounting records for the 10 years 1926–1935. The year 1934 was chosen because it was thought that that year would provide an example of fairly wide differences as between individual farms, but subsequent comparisons for the same farms in other years indicate that the dispersion of the yields in 1934 was not especially great. The basic data used, yield relatives, and seven different index numbers of yields for three crops (corn, oats, and wheat) are shown in table 6. The county average figures represent not the averages of the acreages and yields of the 11 farms, but the averages of those farms together with 32 others in Tazewell County for which accounting records were available in 1934. The prices used throughout are the statewide crop year averages as reported by the Crop and Livestock Reporting Service.

It will be noted that for each farm there are wide differences between the 7 different crop-yield indexes shown. Thus for Farm No. 1 the indexes range from a high of 146.6 for the simple arithmetic mean of the yield relatives to a low figure of 116.1 for the weighted aggregative with fixed weights. For some of the farms one index indicates yields well above the county average, whereas other indexes indicate yields well below the county average. Thus for farm No. 8 the yield indexes range from a low of 83.2 for the simple geometric mean to 124.4 for the aggregative with varying weights. The crop-yield index which is now in almost universal use (index No. 3 in the accompanying table) gives a figure of 104.9 for Farm No. 2, whereas the fixed weight aggregative, which the author believes to be the most desirable form of index for general use, is only 73.5.

These indexes which have been computed for the 11 Tazewell County farms consequently serve to show the need for giving careful attention to the type of crop-yield index which is used in connection with any study which involves a number of average yields of a number of different crops. It is quite conceivable that one reason for disappointing results of some farm management studies which compare various "efficiency" factors including crop-yield indexes with the rate of return of the farms may be the use of faulty crop-yield indexes. However, in some farm management studies the use of other measures may have largely compensated for the inadequacy of the crop-yield index. Thus it is common practice to use "per cent of tillable land in high-profit crops" as a factor related to farm earnings. The present article implies no criticism whatever of the general effectiveness or reliability of methods used in the analysis of farm business data.

The last three indexes given in the table, that is, the three indexes which involve the use of value weights, give fairly consistent results. There is seldom more than a few points difference between index No. 5 and index No. 6, the greatest discrepancy appearing in the case of farm No. 2 where the aggregative index with fixed weights is 73.5 and the aggregative index with varying weights is 92.9. This wide difference is obviously due to the fact that farm No. 2 had unusually high yields of wheat and less than average yields of both corn and oats, together with the further fact that it had a much larger proportion of crop land in wheat and a far smaller proportion in corn than was typical for the county as a whole. Index No. 7 of course must lie between indexes No. 5 and No. 6 in each case since it is a geometric mean of the two.

Attention perhaps should be called to the fact that all the index numbers mentioned above are strictly crop-yield index numbers. They are not index numbers of crop productivity. Index numbers of crop yields are designed to measure the relative height of yields of different crops, whereas an index number of crop productivity should measure the relative amounts of production obtained per acre on different farms. Thus it might be that in a given region some single crop produces by far the highest value per acre of any of the crops grown, but this crop can be grown only on a certain type of soil. If one farm has twice as large a proportion of this type of soil it would have a relatively high productivity per acre of crop land without having better than average yields.

TABLE 6. CROP-YIELD INDEXES AND RELATED DATA FOR 11 FARMS IN TAZEWELL COUNTY, ILLINOIS, 1934

	County average	Farm number										
		1	2	3	4	5	6	7	8	9	10	11
Acreage												
Corn	68.6	56.2	16.0	82.0	58.0	37.0	55.0	18.0	71.0	49.5	36.85	40.0
Oats	34.8	25.2	24.0	40.0	33.0	20.0	43.0	20.0	36.5	27.5	15.0	19.0
Wheat	19.1	24.3	13.0	21.0	23.0	—	28.0	19.0	17.0	—	15.0	21.0
Yield per acre												
Corn	39.1	40.3	21.9	24.9	35.4	58.3	40.0	38.9	51.9	48.8	34.9	29.8
Oats	15.3	26.0	14.9	2.5	20.3	16.3	19.4	17.5	16.7	18.0	5.4	10.3
Wheat	18.6	31.0	33.2	17.6	29.9	—	0	11.5	7.4	—	14.3	21.0
Yield Relatives												
Corn	100.000	103.069	56.010	63.683	90.537	149.105	102.302	99.488	132.737	124.808	89.258	76.215
Oats	100.000	169.935	97.386	16.340	132.680	106.536	126.797	114.379	109.150	117.647	35.294	67.320
Wheat	100.000	166.667	178.495	94.624	160.753	—	0	61.828	39.785	—	76.882	112.903
Index numbers												
(1) Simple arithmetic mean[1]		146.6	110.6	58.2	128.0	127.8[a]	76.4	91.9	93.9	121.2[a]	67.1	85.5
(2) Simple geometric mean[2]		142.8	99.9	46.2	124.5	126.0[a]	0	88.9	83.2	121.1[a]	62.3	83.4
(3) Arithmetic mean weighted by acres on given farm[3]		133.6	104.9	55.0	116.9	134.2[a]	87.9	92.1	113.2	122.3[a]	74.3	83.8
(4) Geometric mean weighted by acres on given farm[4]		129.6	95.6	46.1	113.5	132.5[a]	0	89.1	106.3	122.2[a]	70.1	82.0
(5) Aggregative fixed weights[5]		116.1	73.5	63.1	102.2	145.0[a]	92.8	96.5	120.1	124.1[a]	83.2	79.6
(6) Aggregative varying weights[6]		118.6	92.9	63.0	105.2	144.7[a]	86.5	90.0	121.4	123.6[a]	83.6	82.8
(7) Geometric mean of Nos. 5 and 6[7]		117.4	82.7	63.0	103.7	144.8[a]	89.6	93.2	120.7	123.8[a]	83.4	81.2

[a] Computed from yields of corn and oats only, no wheat having been sown.

[1] $I = \frac{\Sigma \frac{y_1}{y_0}}{N}$ [2] $\log I = \frac{\Sigma \log \frac{y_1}{y_0}}{N}$ [3] $I = \frac{\Sigma \frac{y_1}{y_0} a_1}{\Sigma a_1}$ [4] $\log I = \frac{\Sigma \left(\log \frac{y_1}{y_0} \right) a_1}{\Sigma a_1}$ [5] $I = \frac{\Sigma y_1 a_0 p_0}{\Sigma y_0 a_0 p_0}$ [6] $I = \frac{\Sigma y_1 a_1 p_0}{\Sigma y_0 a_1 p_0}$ [7] $I = \sqrt{\frac{\Sigma y_1 a_0 p_0}{\Sigma y_0 a_0 p_0} \times \frac{\Sigma y_1 a_1 p_0}{\Sigma y_0 a_1 p_0}}$

Crop productivity per acre might be measured to advantage by an index such as the following:

$$I = \frac{\frac{\Sigma y_1 a_1 p_0}{\Sigma a_1}}{\frac{\Sigma y_0 a_0 p_0}{\Sigma a_0}}.$$

This, it will be seen, expresses value per acre of crops produced on the given farm as a percentage of the value per acre of the crops produced on the typical farm, value being determined in both cases at base or typical prices.[3] Such an index of crop productivity would in many cases be fairly close to a good index of crop yields, while in other instances it might vary widely from it.

In conclusion, it may be said that the foreign analysis indicates without question the inadequacy and undesirability of the form of crop-yield index which is in almost universal use. It also indicates that certain other forms of crop-yield index numbers are far more satisfactory for general use. Perhaps the most generally satisfactory of these is the weighted aggregative in which the yields of the individual crops are multiplied by the typical acreages and values per unit of those crops. Those who are directly concerned with the use of crop-yield index numbers in the analyses of farm business records are presumably in a better position than the author to judge just what type of index is best suited to their purpose. In any event much will be gained if farm management and other workers can be brought to think seriously about the technical adequacy of any crop-yield index numbers which they may use. It may also be desirable to extend the analysis to certain other index numbers, such as labor and machinery efficiency, which are commonly used in farm business analyses.

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[3] Essentially the same measure as this has been used in farm management studies. For example, in Three years' summary report of the Farm Bureau Farm Management Service on 135 farms in Henry, Knox, Peoria, and Stark counties—summary 1930, '31, '32, the authors (F. A. Fisher, M. L. Mosher, and H. C. M. Case) use "value per tillable acre of all crops including pasture" in which value is based on average prices. For any single farm this would be the numerator of the above index.

THE BRITISH PROGRAM FOR FARM LABOR— AS A CONTRIBUTION TO AMERICAN THINKING ON THE SUBJECT*

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THE HIRED farm worker and the problems arising in connection with wage-labor in agriculture are assuming a new and larger importance in American thinking. This is not so much because wage-labor in agriculture is new as because the conditions under which workers are employed on the farms of the United States are changing. In part also, this increased interest arises from a new outlook on an old problem.

Britain is and has been a particularly fruitful source of ideas and information with respect to governmental forms and outlook on economic and social problems. While the United States has made great strides in technical efficiency, the British have been particularly effective in working out problems of human relations.[1] It is in the field of labor relations that Britain seems now to have more to offer the United States than in the technical aspects of agriculture, despite the important contributions she has made in earlier times to our soil science, to the betterment of our livestock, and in various other realms of agricultural knowledge.

Before discussing specifically the British situation it seems appropriate to review briefly the changed conditions in the United States which make consideration of these problems particularly significant at this time. Such a summary presents also a point of view to which the later comments may be oriented.

It is trite to repeat the virtually unchallenged comment that American agriculture has reached the close of a major phase in its history. Since 1620 we have developed a continent, have subdued a

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* This discussion pertains, of course, to conditions prior to the outbreak of hostilities, and takes no account of modifications which may have resulted from wartime policies and needs.

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[1] Some of the other European countries have also developed admirable systems for dealing with these problems. This is notably true of Denmark and Sweden. Question may be raised, however, as to how far their methods can be made to fit the complex conditions of a vast and varied country like the United States. This, of course, is true of Britain as well, though in lesser degree.

vast wilderness, and have brought much of it into commercial agricultural production. We have gone through the characteristic pioneer stage of trading the products of our farms for industrial goods and capital from older countries. During this period there have been great opportunities for individual initiative, and for the worker equipped only with intelligence, energy, and courage. There has been little in the way of a continuing proletariat or wage-class, particularly in agriculture.

Now we have reached a stage where we cannot assume freely that the road to farm operation and ownership is open to all farm workers. Farming, like other businesses, requires more and more capital, and unoccupied good lands are negligible in amount. As the industry is now organized, the number of farm units is not sufficient to provide every potential farm operator with lands and with an outlet for his products or his labor. If we include the southern croppers, nearly two and one-half millions of farm workers must obtain their living as wage workers, and must live under such conditions of housing, social opportunity and security or insecurity as we are able to make available to men in that status. It is to be hoped that the way can be kept open for competent individuals to move out of that class to a more satisfying position in the economy of the nation. It must be recognized, however, that for a long time to come, perhaps permanently, we shall have a sizable group earning its living as hired farm employees.

The married farm worker who expects to continue as a hired hand presents many problems that differ from those of the old-time hired man. For the latter this status was assumed to be temporary and often was. Social contacts, housing, educational facilities, were of little concern to him since he expected to move on to something better. But once the job becomes a permanent occupation the situation changes. It has become a way of life, a moulder of the lives of future generations of American citizens. These workers in agriculture are a segment of the population which is warranted in asking consideration in the nation's effort to provide decent minima of living and reasonable security of tenure in jobs.

Agricultural activities both here and in Britain have been looked upon as differing from those in industry and commerce. Recognizing this, The British Agricultural Tribunal of Investigation of 1924 made the following comment:[2]

[2] Agricultural Tribunal of Investigation. Final Report. Cmd. 2145. p. 8–9.

"In the case of other industries the question is not commonly asked by the public: Does the industry have as great an output as possible. The industry is left to itself to find out what, in the narrow sense of the term, is its most 'economic' organization. The test is not output or employment, but profit; though this test is to a certain extent modified by the enforcement of national standards with respect to the conditions of labor. Nevertheless, the contrast in the public mind between agriculture and other industries is very marked. Agriculture has not been regarded simply as a business, but as something more. What is that something more, and why? It is partly that agriculture is charged with the use of the land, which is limited in amount and of peculiar economic and social value; partly the great importance of the produce of the soil to the life and industry of the people, in peace and especially in war; and partly ideas as to the value of a flourishing rural population in the concentrated and intense life of the modern industrial state."

This same contrast in attitude is evident in the United States, though for obvious reasons it is oriented more largely to man-land relationships than to food production. We have accepted the disappearance of the small, family-owned and operated unit in manufacturing. We have taken for granted that the worker in industry and trade will continue on a wage or salary basis throughout his life. So long as monopoly controls have not appeared we have accepted the view that varying capacities for organization and management will be given scope for their use on any scale that may be attainable by the individuals possessing them. Corporate forms of ownership, hired management, and impersonal relationships between owner and employee are accepted conditions.

Not so with agriculture. As large-scale operations, wage-labor, and corporate organization have appeared, they have met with widespread condemnation and with demands for reform. Why this difference in public attitude? Is there some fundamental difference between carrying on a business on the land and carrying on a business in the city? Is there some reason why wage work on the land is more unwholesome, more of a menace to society than in industry or commerce? These are problems that must be faced and thought through in broad terms of national and community welfare; and wise solutions must be sought.

To approach these problems in terms of all-round public welfare does not, as some critics would seem to imply, signify taking an antagonistic attitude toward the farm operator. We are all too familiar with the problems he faces. It is appropriate that society

should seek a decent level of income for the farm operator and his family; opportunities for use in his business of a high level of education; and an outlet for superior managerial skills. Without these, in other words with a limitation of farming to petty units and peasant forms, we must inevitably drive out of the industry those young people of larger abilities, and must condemn the farming class to slow deterioration.

How then can that range of opportunity in agriculture be conserved which will appeal to widely varying human competencies and at the same time meet the plainly evident social responsibility of providing decent conditions of life and work for all workers, employees as well as employers. To what extent also can the industry provide an outlet for as many as possible of those who find themselves cut off from work opportunities in either agriculture or industry.

The nation has moved far in recent years in its attempts to provide greater security, better working conditions, and a voice in business policies for its wage workers. Few would contend that these measures are yet ideal or that the workers have learned to use wisely the new responsibilities and privileges they have acquired. That, however, we may hope for as we grow in knowledge and experience. The farm worker, however, has been excluded from practically all of the benefits conferred on his fellow-workers in industry. Neither the reasons for nor the merits of such exclusion will be discussed here. That is a major topic in itself. Instead it is the purpose of this paper to consider steps taken by Britain which has had the problem for a longer time, and has made a more conscious effort to solve it.

British farming is, more like that of Western Europe than like that of the United States. It differs, however, from the agriculture of the continental countries. Some of the effects of the enclosure movement are still recognizable. Farm units are larger than those on the Continent. There is less of peasant agriculture, fewer workers per unit of land area, and a generally less intensive agriculture. Hours of work are shorter, child labor is less imporant, and educational opportunities are better. The percentage of holdings of less than 50 acres is about 66. For practically all of the continental countries it is not less than 90.

The majority of the farms (about 75 per cent) are operated by

tenants, and most farmers appear to prefer this status to that of ownership with its heavy requirement for capital. The laws governing tenancy in Britain afford to the tenant many of the advantages which in the United States can be secured only through ownership.

The proportion of hired workers to all workers engaged in agriculture is much higher than in the United States. Also the proportion of regular employees to casuals is considerably higher than in this country. As of 1933 hired workers employed in agriculture (England and Wales) were as follows: Regular employees, 595,211; casuals, 119,835; a total of 715,046.[3] These figures are subject to some qualification but will give a general idea of the situation. The number of holdings was, in 1933, 388,433 of which 169,455 were of less than 20 acres, while 78,697 were of more than 100 acres. It will be seen that these farms averaged nearly two hired workers per farm even when all holdings down to one acre are included. For the United States, hired workers (in January 1935) were about one to each three farms. Numbers increase later in the season and might amount to as many as one to every two farms or even more.

It will be noted that nearly 85 per cent of the British farm workers are regular or year-round employees. This is far higher than for the United States. As a result of this high proportion of regular employees the British problem of bettering conditions for the farm worker is far simpler than that of the United States. Particularly is this true with regard to housing arrangements, possibilities of collective bargaining, unemployment insurance, and social opportunities.

Some conception of the much higher relation of workers to land in Britain than in the United States can be secured from figures presented by Carslaw and Graves for 150 farms in eastern England. These show, as of 1936, approximately 30 manual workers per 1,000 acres, 24 horses, 3.79 tractors, and 3.61 motor-cars and vans.[4]

Another characteristic of British agriculture is the predominance of grass culture. It is a relatively extensive type of agriculture as European farms go, but appears to be more profitable than crop farming. This tendency to lay the land down in grass has caused much discussion in Britain. Considerations of national defense ap-

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[3] A. W. Menzies-Kitchin, Land settlement, a report prepared for the Carnegie United Kingdom Trustees, Edinburgh, p. 16 and 20, 1935.

[4] R. McG. Carslaw and P. E. Graves, The changing organization of arable farms. Econ. Jour., p. 488. September 1937.

pear to call for much more crop farming than has prevailed in recent years. At least this is the view of a considerable number of British leaders. Total area in crops and grass has changed little since 1870. For the United Kingdom as a whole, however, arable area in crops, excluding rotation grasses, has fallen by some 25 per cent since 1870.

Another respect in which the British farm labor situation differs markedly from that in the United States is in the existence of three fairly strong and stable unions of farm workers. These are The National Union of Agricultural Workers (England and Wales), The Scottish Farm Servants' Union, and a third, which is not primarily agricultural, the Transport and General Workers' Union. This latter is something of a catch-all so far as unionization is concerned, and takes farm workers into membership, particularly in areas where these are too scattered for effective organization or where there are no locals of the N. U. A. W.

I certainly would not wish to leave the impression that all is rosy as between farm employers in England and the workers' unions. I think one is warranted to say, however, that unionization of labor and some form of collective bargaining are much more generally accepted in Britain than in the United States. Whether as cause or effect of this, or merely by coincidence it seemed to me that leadership in the British agricultural unions was of a more responsible and constructive type than has been usual in American agricultural unions. Possibly the difference lies mainly in their longer experience and greater opportunities for developing settled policies. Certainly, the leaders in some of the British farm workers' unions are of sufficient caliber that they participate in a responsible and respected way in consultations on national policy. It was a unique experience to attend a meeting of the British Agricultural Economics Society and to find as its president Joseph Duncan,[5] for many years secretary of the Scottish Farm Servants' Union. Were it possible to bring out in the American farm labor groups leadership of this kind, the interests of these groups might be far more adequately represented, and at the same time employer groups might find some of their fears of collaboration with the workers unjustified.

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[5] Not only had he been awarded this well-deserved honor, but he presented one of the most thoughtful and stimulating papers of the session. Mr. Duncan has twice visited America as a participant in meetings of the International Conference of Agricultural Economists.

The organization of farm workers in England has had three separate starts, the first in 1872, led by Joseph Arch, the second in 1890 under the leadership of Sir George Edwards, and the present one which dates from 1906. At the time Arch's union was formed the franchise was almost wholly restricted to the land-owners. What have been referred to as the "radical manufacturers" did not like this situation. They subsidized the union for a time, and helped to secure the franchise for farm workers. That was accomplished in 1884. Thereafter the union, which at one time had more than 100,000 members, declined in importance. It disappeared about 1888.

The second movement affords an interesting aspect of the peculiar mixture of democracy and class stratification which is England. George Edwards was a farm laborer. However, as a result of his work in organizing these workers he was later knighted and thenceforward carried the honored title of Sir George Edwards. He was carried on a pension by the present union for many years.

The present union had 120,000 members at one time. It engaged in a large-scale strike in 1923 and came out of it greatly weakened. The cost to the union was some $150,000, and 10,000 workers were out on strike. In later years membership stood at about 30,000 for a considerable period. In 1937 and 1938 it grew rapidly and now has about 50,000 members. Dues in this union are 4 d per week (about 8 cents). It pays a small accident benefit to cover the period before official compensation comes through (10 s per week for 2 weeks).[6] It also provides a small death benefit, £7 for a man and £3-10s if the wife dies.[7] In the Transport and General Workers Union dues are higher and the rates provide for a superannuation benefit.

The N. U. A. W. now has assets of more than $200,000, of which about $75,000 are invested in Headland House in London, where its offices are located. An interesting feature of its financial operations is the publication annually of a complete detailed record of income and expenditures as certified by an outside firm of public accountants. The Union publishes a monthly magazine, "The Land Worker," which is a newsy, good-humored treatment of current interests of organized farm labor.

Little has been said about collective bargaining as a phase of the Union's activities. The reason for this lies, of course, in the fact that Britain has an official mechanism for wage determination, and that

[6] About $2.50.
[7] Roughly $35.00 and $17.50.

the unions have only a collateral concern in the matter of wage determination. This will be discussed later. This limits considerably the functions of the unions, and in some measure detracts from their ability to appeal for members. Both the effects and the attitudes resulting are somewhat akin to those which occur in cooperative marketing associations in the United States when market agreements or other government arrangements are entered into. A similar situation arose in the American Farm Bureau Federation when it decided to sponsor specific marketing agencies but not itself to engage in marketing activities. The unions thus have had to give more emphasis to their legislative, legal, and social services than to bargaining activities. They do, of course, provide an essential mechanism for nominating labor representatives on the wage-boards.

It is evident that the extent of unionization lacks a great deal of full coverage. There is, however, a sufficient nucleus to give the farm labor group some means of participating in an organized way in public policy formation, and to bring out in an orderly way its viewpoint and problems. Furthermore, it is in a position to fight its own battles in legislative halls and in the courts.

Legislative provisions for bettering the lot of British farm wage workers fall in the main into three categories: agricultural wages boards, unemployment insurance, and housing. Principal attention will be given to these three features with some consideration of their possible usefulness under conditions such as we have here in the United States.

Recognition of the right of government in England to determine wage rates dates back at least five centuries. In early periods this right was used to establish maxima, instead of minima. The story of the evolution of current attitudes about the matter is too lengthy for consideration here.[8] Suffice it to say that in the industrial realm the modern wage-board system had its beginning in the Trade Boards Act of 1909. It was designed originally to meet the situation in so-called "sweated" industries. In its early stages the plan was looked upon as a way of preventing flagrant abuses, of establishing minimum wage-rates, and as a protection against exploitation of those workers likely to be in the weakest bargaining position.

As the program has been extended from industry to industry and

[8] This is briefly outlined in the monograph by Dorothy Sells, British wages boards, a study in industrial democracy. Brookings Institution, Washington, D. C. 1939.

as experience has been gained in administering it, there has been more tendency to establish standard rates of pay rather than minimum requirements. Instead, however, of direct bargaining of employer and employee groups with the public ignored, the system provides, as nearly as may be, for equality of bargaining power on the part of these groups and for active and responsible participation by representatives of the general public. Such public representatives are in fact often the most influencial factors in final determinations. The plan was extended to agriculture (England and Wales) in 1924. In 1937 it was likewise adopted for Scotland.

The agricultural wages boards are set up in the following manner. For each county or district an official board is established. On this are certain members nominated by the National Farmers' Union which is the single organization representing farm operators or, in other words, farm employers. There is an equal number of members nominated by the agricultural workers' organizations, in a proportion agreed on between the two unions.[9] In addition the Minister of Agriculture and Fisheries appoints two "impartial" members. The chairman is selected by vote of the Committee but must be one of the "impartial" members since the representative members are ineligible for this office. The Minister may also appoint a secretary for the committee, and other employees to investigate complaints and secure observance of the provisions of the act.

The minutia of organization and procedure will not be detailed here since our chief concern is with the general principles of the plan. Meetings are called by order of the chairman or on written petition of five or more members of the committee. Once the committee is assembled its procedure is somewhat comparable to collective bargaining in a fully organized employer and employee situation, but with more representation of the public interests and viewpoint. Rates are determined by argument and discussion. Often, however, final decision must be made by the "impartial" members. This fact places the public representatives in a difficult, sometimes disagreeable position. It seems impossible, however, to escape some problems of this kind in those instances where the representative members cannot agree. The arrangement tends to

[9] If the two workers' organizations fail to agree on representation within fourteen days the Minister of Agriculture and Fisheries is authorized to determine the proportions in which wage-board representatives shall be nominated by each organization. So far action under this provision has been unnecessary.

avoid deadlocked situations, and also to prevent collusion between employers and workers which might in some instances operate to the disadvantage of the longer-term public interest.

Once the decisions are reached and properly promulgated they have the force of law and, presumably, are enforced by publicly employed inspectors. Thus, unlike agreements reached between unions and employer organizations the standards adopted apply automatically to all workers and all employers in the jurisdiction whether organized or not. This to some extent mitigates employer opposition to given rates since those paying a rate above the open competitive level are not subjected to destructive competition from groups not included in the arrangement. Independent determination of wage rates by the various county committees does, however, leave a loophole in this provision since adjoining counties may establish different rates and thus introduce an element of unfair competition. It is the employers, however, who have insisted on this provision. The workers' organizations would prefer a more centralized system.

The committees may fix minimum piece rates as well as weekly wages, and also have power to order payment of amounts which may be due workers where employers have undercut the established rate. Maximum hours per week at the regular rates are also determined. Hours in excess of such maxima are usually permitted but on a graduated increase in rates of pay. These penalties, however, are not so large as those usually applying in American union scales. Provision is also made for special permits for lower rates of pay where workers are partly incapacitated by age, or other physical or mental handicaps. The boards also have undertaken in most cases to introduce a weekly half-holiday and certain annual holidays without corresponding reductions in pay. A further aspect of their work has been in establishing official valuations for payments in kind and maximum charges for housing.

We may now turn to consideration of what this program has accomplished and what usefulness it might have under our conditions. It has provided for orderly representation of the interests of a group that has been notoriously weak in bargaining power. Such representation has been provided without necessity for the sensational, often extreme, fanatical, and expensive propagandization necessary to build and maintain a bargaining agency on an unofficial basis. To assure bargaining strength a union does not have to strong-arm

workers into membership nor does it have to use so extensively the threat of strike. A moderately representative union membership can function effectively. Strikes are not prohibited by the act. It is significant, however, that there has been no important labor strife in agriculture in England and Wales since the passage of the act in 1924. The financial gains both to workers and employers from such a period of labor peace are enormous, as they would be in American agricultural areas where labor troubles are frequent and severe. One of the factors leading to the passage of the act was the large and expensive strike of 1923. Much of the development of the British wage-board system as a whole has in fact been a result of serious strikes or threats of strike. As Dorothy Sells has commented, "The British wages boards represent an application of the parliamentary form of government to a particular economic field."[10]

Would such a system contribute to a better situation in the United States? What modifications would need to be made? My personal reaction to the first question is "yes." The second cannot be considered fully in this brief discusison. Certain agricultural areas in the United States, notably California and parts of the South, have had widespread strife and bitterness during recent years. An effective mechanism and attitude for collective bargaining have not so far been achieved. The expense, the losses in community harmony, the deterioration in loyalty to American forms of government, unmeasurable though they may be, are things to be reckoned with. It would seem, however, that some such mechanism as that outlined above might be adapted to American conditions with advantage to all parties concerned.

The American farm worker of the West, migrant, poverty-stricken, and unstabilized, is a difficult person to organize for effective, constructive bargaining and mutual aid. Appeals adequate to bring him into a union are likely to be extremist in type and sporadic in results. The bitterness and disillusionment resulting, foster class-consciousness and favor violent methods. The prospects of early and effective organization of such workers are meager, and the conditions just mentioned all too frequently lead to counter-organization that more than offsets such gains as may come from the workers' efforts to better their condition.

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[10] British wages boards, *op. cit.*, p. 8.

Some of our most difficult problems would not necessarily be met by a wage-board scheme. Possibly they could be dealt with eventually under such a system. One of these is preferential hiring for workers established in the community. So long as a given amount of employment must be spread among a constantly more diluted labor force incomes must be unsatisfactory regardless of wage rates. At the same time those important requisites of life, stability of residence and employment, will be nonexistent. It is not impossible, however, that even these problems could be dealt with once an effective means for sober joint counsel of workers and employers about the conference board had been established. To be sure, stability of work opportunity for some may mean absence of employment for others. This is one of the major problems we now face. It has not been present to any great extent in the British situation and this is one of the factors that has made their problem much easier than ours.

It would be not only untrue but foolish to contend that all has been harmony and good will in the British wages boards. There have been sharp clashes and mutual criticisms. That is to be expected. It has sometimes been difficult to induce appropriate individuals to serve as "impartial" members. Some feel that such representatives have been more generally inclined to side with the employer than with the laborer. The impression one gains, however, is that neither the workers nor the employers would now seriously advocate abolition of the wages boards. With all their faults, they seem to be an improvement over available alternatives.

Let us turn briefly now to the unemployment insurance features of the British legislation. As in the United States, the first legislation in this realm did not include workers in agriculture. The act of 1911 covered only a few of the trades or occupations (building, construction of public works, shipbuilding, mechanical engineering, and iron founding). As experience was gained the coverage was extended and finally agricultural labor was brought in through the Agriculture Act of 1936. In the meantime numerous special committees had studied the problem and reported on it.

Under this system contributions are made equally from the worker, the employer, and the government. Weekly contributions vary with the age and sex of the worker. For males they range from about 9 cents a week for boys under 16, to 21 cents for men of 21 to 64.

For women the corresponding variation is from 6 cents to 18 cents. Benefits range from 5 shillings a week (about $1.25) for boys of 16, to 15 shillings (about $3.75) for men 21 to 64 years of age. The corresponding range for women is from 4 shillings to 13 shillings. There are some additions for dependents.

Few will question the need for some form of unemployment benefit extended widely through the economic structure. Not many workers in our complex modern society can assure themselves continuity of employment; few are strong enough financially to meet periods of unemployment without serious hardship. Added to these considerations is the fact that widespread unemployment without a compensating flow of emergency funds is extremely deflationary. Controversy about unemployment compensation is more over methods than objectives, and except from the standpoint of expediency there is little argument for excluding any low-income group.

Agricultural labor, under conditions now prevailing in the United States, is, to be sure, one of the most difficult groups to handle, even if all were willing to see the plan tried. The varied and transitory relations with employers, the long periods of unemployment, the financial distress of farm employers, all complicate the problem. But it would be a mistake to assume that we are providing no aid to the agricultural unemployed. Our contributions in relief and in various forms of federal aid amount to hundreds of millions of dollars. Unfortunately the forms they take are such as to be humiliating to the recipient and to contribute little to correction of the underlying causes of the trouble. In highly commercialized agriculture there is no definite personal incentive for the employer to do what he can to regularize employment. His interests are directly opposed to that. If employers had to make contributions for unemployment in inverse ratio to the duration and stability of work provided there would be created a definite incentive for them to spread work, to diversify their production, and to stabilize employment. This motivation is totally lacking in the present situation. The fault is not that of the individual farmer but of the system.

The British system of unemployment benefits in agriculture cannot be transplanted bodily to our conditions. It is, however, worthy of careful study. Sooner or later we must create for the man who makes farm wage work his occupation a situation that will enable him to be a self-respecting, wholesome part of the community. If

not we can expect a widening effort to bring all agriculture to a small-scale peasant type in which little labor will be employed.

I want to discuss briefly only one other aspect of the British program. I have already mentioned that more than three quarters of the wage workers in British agriculture are employed throughout the year. Also that many are family men who follow this as a permanent occupation. This means that they must have houses to live in, and that these houses can be and usually are more adequate and permanent structures than are provided for our short-season workers. Nevertheless there has been much criticism of the housing available to British farm workers. Some live on the farms where they work, in so-called "tied" cottages. Many live in neighboring villages. Most of the cottages have permanence because they are built of stone or brick. But they are often inadequate in spaciousness, in windows, in quality of floors, in dryness, and in water and toilet facilities.

In recent years the government has proceeded on a rather broad scale to better these conditions. Inspection and the condemnation of inadequate housing is one measure. Subsidies and long-term loans to farmers for construction and rehabilitation are others. Aid has been afforded to county and local councils for constructing and renovating low-cost village housing. Britain has approached housing as a social problem and responsibility. In recent years probably 75 to 80 per cent of all construction, urban and rural, has been with some measure of subsidy. Since 1919 some 4,000,000 units, mostly urban, are reported to have been constructed.

As a part of this program the agricultural wages boards have established definite maxima of rentals that can be charged farm workers. These are usually either 3 shillings ($0.75) or 4 shillings ($1.00) per week. It is evident that the farm worker on a wage of seven to ten dollars per week cannot afford much for rental of housing. The rates allowed will not cover the costs of adequate housing. The government's policy in a general way has been to provide subsidies which will make up the difference between the values covered by authorized rentals and the costs of providing the facilities. True, this is a subsidy to agriculture, a subsidy which may be more warranted in Britain than in the United States. But it is bringing about improvements in the housing of farm workers. Since we do subsidize agriculture anyway, is there anything reprehensible in subsidizing it in part through better housing for its workers?

For the United States the problem is vastly more difficult, and should take different forms than those suited to Britain. Nevertheless, we find here again certain points of view and methods which may be useful in dealing with our problem.

I do not want to leave the impression that all is well with British farm labor and that all is bad with ours. Britain has her problems in this realm. There is poverty, squalor, and frustration among farm laborers in Britain as well as in the United States. She has, I think, accepted a more definite responsibility for bettering conditions than has the United States, and has made some progress. Her problem is less difficult than ours. This brief discussion seeks merely to focus attention on some of the British measures which seem worthy of study and possibly in some measure, of emulation in the United States.

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CONTRIBUTIONS OF SOIL SCIENCE AND AGRONOMY TO RURAL LAND CLASSIFICATION*

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LAND classification implies the development of a logical system for the arrangement of different kinds of land into defined categories, according to the characteristics of the land itself. These characteristics may include those that are directly observable, as relief, or those that may be ascertained only by inference, as soil fertility; or cognizance may be taken of those that are determined by a combination of direct observation and inference, as the soil profile. Every science must have some means of classification if the facts are to be remembered, if relationships are to be discovered, and if fundamental principles are to be developed. Although classification is a matter of logic rather than of science, it is, nevertheless, essential to the progress and application of science, and especially to the understanding of relationships between things and between sciences.

Each science dealing with land has, therefore, some sort of land classification, or rather partial land classification. These systems are often designed to serve the restricted purposes of one science and may stress only certain attributes of land. If our knowledge in all sciences were complete, and properly integrated, it might be possible to develop one fundamental and comprehensive system that would serve all of them. Certainly this state of perfection has not been reached, and is not likely to be for some time. Some sciences have advanced their systems more than others, partly because the matter is of more importance to some than to others; but the problems of relationships among the contributions of the several arbitrary disciplines is hardly more than recognized, let alone solved. Yet problems arise in all of the fields and between fields—problems that cannot await perfection in classification. Therefore several more or less strictly pragmatic or technical systems have been developed, based, of course, on the more fundamental concepts and on the natural systems of classification. For example, soils may be classified in accordance with their lime requirement, their suscepti-

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bility to erosion, their adaptability to particular crops or rotations, and so on. Each of these may be developed separately, but are more often obtained by interpretation from the fundamental natural system, which is even more comprehensive than several of these simple ones together. Although the task may be difficult when the problems for which the technical classification is an immediate necessity lie largely within one recognized discipline, it is enormously more difficult when the problems require the application of knowledge lying, or thought to be lying, within two or more disciplines, such as soil science and economics, for example.

Maps

Land classification has another special source of difficulty. Although mapping is not necessarily involved, and indeed many systems of classification dealing with land, or some component of land, have useful purposes not connected with maps, most systems of land classification imply that specific bodies of land in the different categories will be shown to scale on maps. Mapping is sometimes costly and time-consuming and frequently presents many engineering difficulties, especially if boundaries are drawn with reasonable accuracy in respect to local detail. This fact places limitations upon the kinds of classification that can be used. Ordinarily the taxonomic units in the classification are shown on maps, but frequently two or more kinds of land are intermingled in such intricate and detailed patterns that they cannot be shown separately except at great cost and on such a large scale that the map becomes unwieldy for many uses. Thus for purposes of mapping, unlike bodies of land sometimes must be grouped into geographic associations or complexes, defined in terms of the taxonomic units in the system of classification. The smaller the scale of the map, the greater the proportion of such associations among the cartographic units.

In the mapping procedure sufficient distinction has not always been made between those things that are directly and uniformly observable by most people and easily plotted by strictly engineering methods, such as houses, roads, and lakes, on the one hand, and things that are largely matters of interpretation by specialists on the other. Soil types, for example, are not easily standardized. Concepts regarding their nature and significance depend upon the results of a whole body of research that has been going on for years, and is going on now at an increasing rate throughout the world. These concepts change, and only well-informed students of soil sci-

ence can be expected to recognize and define soil types and plot their boundaries accurately. Going even further perhaps, maps showing bodies of land classified according to practices recommended for the maintenance of productivity or according to recommended size and type of operating units, for example, are developed by interpretation within a frame of reference that is dynamic in respect to economic and social conditions, as well as to technical agricultural practices. Although such maps may be plotted upon standardized base maps, the land maps themselves can scarcely be standardized. Their form and content depend upon the requirements of the problem, the kind of agricultural region within which they are made, and the knowledge available to the workers.

The Problem Must Be Recognized

The first requirement for the successful development and application of any technical system of land classification is a clear understanding of the problems for which the classification is needed. Obvious as this principle seems, the failure to recognize it is responsible for many failures in land classification. Time and time again people devise a system of land classification, even make maps, and afterward look for a way to use them. This is like making a piece of furniture without knowing its intended use—whether as a chair, a bureau, or a kitchen sink. Again a particular land classification job may be unjustly criticized because it fails to reach some objective not contemplated during its construction. Of course, all possible needs and uses cannot be foreseen, but something more definite than a hazy idea that land classification, in general, is a good thing is necessary for useful results. Frequently a "general" or "rapid" survey, employing a schematic system of classification, is made where more detail is required to reach the objective sought. Such surveys are likely to lead to some waste of energy and resources. For example, surveys to serve as a guide to planning individual farms have been made with an allowable accuracy of nearly 100 acres in regions where the average size of farm is little more than 50 acres. Indeed such a map, if properly drawn according to a logical system of classification, may have use, but certainly not in individual farm planning.

Unless the objective is clear there are likely to be serious gaps or overlaps among the categories in the system of classification. Even the logical basis for the establishment of categories may not be consistent. The late Dr. Marbut had an excellent descriptive ex-

pression for these systems. He referred to them as "classifications of houses into red houses, brick houses, and small houses."

On the other hand, more detail than is necessary is sometimes obtained with a consequent waste of funds, time, or both, and a sacrifice of clarity. If a logical system has been used it is a relatively simple matter (although sometimes a costly one) to make a generalized land classification and a generalized map from a detailed piece of work. In regard to generalization, perhaps it is unnecessary to point out the enormous difference between categorical and cartographic generalization, although people sometimes confuse the two. Let us take as an example a detailed map of soil types on a large scale. If the classification is detailed, and each unit carefully restricted in definition, there may be as many as 150 mapping units. These units may be combined into higher categories in a great many ways for different purposes; but even though all 150 were placed into as few as five groups, the map likely could not be reduced in scale very much, if at all. To reduce the map in scale, the units must be grouped into geographic associations, an entirely different and usually much more difficult procedure. In many of these geographic associations, representatives of all five taxonomic groups may be included, but in different proportions.

Synthesis Essential to Classification

It must be emphasized that in land classification groups of characteristics are involved. Each kind of land is usually distinguished from other kinds of land by a large number of characteristics. Sometimes no one of these may be significant by itself but the whole group, taken together, is of significance. Even differences in characteristics that appear from simple inspection to be rather obscure, may be actually of the greatest importance because of the inferences that may be drawn from them. The significance of any particular observable characteristic depends upon the others in the whole set. Thus whether a given difference in acidity, in slope, in depth of soil, in distance from markets, in rainfall, in elevation, in cover, or any other characteristic is significant, and should serve as a criterion for separating classes, cannot be answered without considering the relationship of this characteristic to the others. Sometimes it may, but again the same difference in another association may not. In my judgment more errors have been made and are being made in land classification from a failure to recognize this principle than from any other single cause.

In land classification the data must be synthesized into precisely defined classes, whether it is a basic natural classification, or a technical one designed for some specific purpose or purposes. Sometimes this difficult problem of synthesis can be avoided by making separate classifications and separate maps of selected characteristics, leaving the job of synthesis for a later time, or for the reader. This sort of thing may be useful, may serve valuable purposes, but it isn't classification—rather it is a way of recording individual characteristics that postpones the problem of classification. Some observations made in the field are recorded more properly in the notebook than on the map. If the several maps are made on one piece of paper some confusion may be introduced, for instead of having three to ten individual maps, say, with reasonably intelligible legends and explicit descriptions of the mapping units, what appears, at first glance, to be a single map is presented that may have thousands of different kinds of symbols, different kinds of areas, in which it is unconsciously assumed that each selected characteristic has exactly the same significance under all conditions.

Land Classification Defined

Land classifications are made at so many levels of completeness and from so many different points of view that an examination of any one of them promises to be a new experience. The word "land" itself is capable of many interpretations. Some restrict it to purely physical features and, in the classification, deal with physical land types that are very close if not identical to soil types, soil phases, or soil associations. Others use the term in the sense of real estate, or even more broadly, and give weight to many other characteristics of a geographic, economic, or social nature. Then there are many gradations between these two, but rarely are they defined. Recent experience seems to show that people generally are inclined to the broader definition, to something like, "the whole natural and cultural environment." For my own part, I favor this broader concept, and would exclude from land classification systems less comprehensive and call them classifications of soil, of farmsteads, of roads, of present land-use, or whatever was appropriate.

Thus general land classification might be defined as a classification of specific, defined, recognizable bodies of land according to their significant physical and cultural characteristics. In this definition no precise restrictions are placed upon the classification as to detail, but all characteristics of the physical and cultural environ-

ment are included in accordance with their relative significance. A technical land classification could be defined as one in which the significant facts had been recorded and synthesized with sufficient categorical detail to accomplish the special purpose or purposes that the classification is to serve; and if the classes are to be shown upon maps the cartographic expression must be sufficiently detailed for the maps to serve their intended use.

Although the discussion may have seemed so far to deal with very general principles, and only with a few of these briefly, there appears to be no other way to make the assumptions used in this paper regarding the definition and the scope of land classification clear. Further, land classification cannot be regarded as falling within the province of any recognized discipline—at least not land classification as just defined. There are, to be sure, systems of classification within the several disciplines, within geology, soil science, economics, botany, and the others, but these cannot be called land classifications without considerable qualification, no matter how accurate, how useful, and how necessary they may be. A good classification of soils, for example, may be much more useful than a poor land classification, but it still remains a classification of soils. A proper land classification must be developed through a synthesis of data from several disciplines. These must be gathered and interpreted by the proper specialists and finally synthesized through the cooperation of these specialists, having a common understanding of the problems for the solution of which the land classification is needed.

The problems to be solved may require a detailed land classification or one with broadly defined classes. Some have implied that these are concerned with different attributes of the land and fall in the provinces of different specialists. It has even been suggested that land classifications designed to deal with problems of land management within farm boundaries are almost exclusively the province of the soil scientists and agronomists, while those dealing with problems of general planning outside of the farm boundaries are the particular concern of economists. Distinctions of this kind, based upon the professional training of the workers, are not only unsound on theoretical and technical grounds but are certain to lead to inadequate results. If soil characteristics are of significance to rural land-use at any level they certainly are at all levels. And the same is true of other characteristics. That is, is it logical to as-

sume, for example, that economic considerations are of first importance in a schematic classification of land in distressed areas for general planning, but not of importance in the detailed classification of land in prosperous sections of the Corn Belt? Or is it logical to assume that soil characteristics are essential to land classification designed to serve as a basis for the recommendation of crop rotations and fertilizers and are not important to a land classification designed as a basis for the extension of agricultural credit?

There is still too much attempt at land classification by so-called specialists of this or that—too many "specialty approaches." Of course, the contribution of the several disciplines are individualistic. But I fail to see why a land classification developed under the leadership of an economist, should be one bit different from that developed under the leadership of a soil scientist or of a geographer, if each correctly understood the problem and secured the essential cooperation. I fail to see why one should approach the problem differently from another, except as he failed to understand the problem, or the logic of classification, or both.

Soil Classification

Soil scientists have been working on the development of a system of soil classification for somewhat over 40 years in the United States. Of course, the research upon which it stands was begun many years before that, and much of the knowledge of soil science has been interpreted from the experience of farmers, going back many centuries. Obviously a system of soil classification is essential to the organization of soil and crop research and especially for the application of the results. In turn, the data developed through the many research activities are necessary for the system of classification. Thus soil classification is an essential part of soil and agronomic research and can only be developed in close harmony with it. Soil mapping could hardly be said to have an objective by itself, apart from the objective of applied soil science as a whole. This objective can be stated briefly as follows: To determine the kind, yield, and quality of plants that can be produced under alternative, physically defined systems of management on the various types of soil, and the influence of these systems upon the long-time productivity of the soil types. It is the problem in soil classification to develop suitable categories so that the facts about soils and their responses to management can be remembered, relationships dis-

covered, and fundamental principles developed. From the expression of this classification upon maps, the practical applications of the principles can be made in respect to particular tracts of land, fields and farms.

The soil type is the simplest or fundamental taxonomic unit in soil classification. It is defined by a group of observable characteristics the significance of each of which must be understood in relationship to the others. These characteristics include those exhibited by the thickness, color, structure, texture, consistence, and reaction of the horizons of the soil profile, the lithologic and physical nature of the parent material, and such external features as relief and stoniness. Within any one soil type the characteristics are liable to vary somewhat, but within defined limits for the type. The restrictions extend not only to the internal characteristics of the soil profile but also to those external features that have significance to the development and functioning of the soil. The allowable variation within a soil type of any characteristic depends upon the other characteristics with which it is associated. Thus, some soil types have almost no range in slope, whereas others may have considerable range in slope, provided that these differences are not strictly related to significant differences in the soil profile under natural conditions.

Where allowable variations in some characteristic, such as stoniness, depth of soil or erosion, slope, or susceptibility to overflow, have significance to the use of the soil for plants, or to its functioning when cultivated, phases are established as sub-classes within soil types. Each phase is defined in relationship to the soil type of which it is a subdivision, since the relative significance of a difference in one soil factor depends upon the other characteristics of the soil. For example, when devoted to ordinary cultivated crops some soils may be subject to erosion if the slope is more than 1.5 per cent; for others, this critical figure may be much higher—up to 50 per cent in extreme cases. That is, the filtration of water into a soil and its erodibility under any particular management depends upon a whole group of soil characteristics of which slope is only one. In addition to its relationship to erodibility, slope is important as a factor influencing the amount of water that enters the soil and drains from it, and as a factor determining the use of tillage implements and other machinery. Thus the particular degree of slope at which a relief phase of a soil type is recognized depends upon other

characteristics of the soil and can only be stated precisely in percent or degrees for each combination of characteristics—for each soil type.

The same logic applies with the other characteristics—acidity, structure, depth of soil horizons and so on down a long list. In the development of the system of soil classification the most important and most difficult matter is this synthesis into defined classificational units of all the characteristics of the soil in their proper relationship to one another. This is done on the basis of what is known regarding the soil and the relative significance of individual characteristics to plant growth and management practices when associated with different sets of other characteristics. Soil and agronomic research is continually making available new data and new new knowledge that leads to the gradual change and improvement of this system of classification.

Productivity Ratings

Having once accurately defined the classificational and mapping units, the available information regarding the relationships between the individual soil characteristics, and between the sum total of characteristics in a given soil type and the responsiveness of the soil to management, may be related to these units. This knowledge comes from all branches of soil science, and from agronomy, horticulture, and forestry, including the results of researches in the laboratory and on the experimental plots, as well as from the experience that farmers have had using the soils. One cannot make a suitable map of soil or land on the basis of crop yields, present land-use, tax delinquencies, or similar criteria, but such data, when classified according to soil types, may be very suggestive of their responsiveness to management.

The productivity of a soil type (or phase) is the result of the combination of soil characteristics in relationship to the system of soil management. This productivity can be expressed in terms of yield and quality of crops under physically defined systems of management. Almost no soil is productive for crops without some kind of management. Although many soils need only to be plowed and cultivated to produce good yields of crops, others respond but little to such simple practices, yet with more intensive practices, including such techniques as liming and fertilization, they may give excellent yields. Thus it may be said that a certain soil is naturally

low in fertility but very responsive to management, and hence productive. It must be emphasized that to compare soil types as to productivity requires the careful definition of the management under which specific yields may be predicted. In cooperation with several of the State Agricultural Experiment Stations, the Soil Survey has made some progress during the past few years in developing productivity ratings for soil types and phases. These are expressed directly in terms of tons, bushels, or pounds, or more adequately, in percentages of fixed standards for each crop. Where the information is available several ratings may be given for one soil type under different systems of management. This ideal is not everywhere attainable yet, but fortunately, the helpful cooperation of many soil scientists, agronomists, and economists has been extended to the workers engaged upon the development of these ratings, and further progress can be confidently expected. Provided the soil types and phases are properly defined, the concept of the productivity rating makes available a means for synthesizing the great background of research work and experience in one figure of expected yield under a defined system of management.

Knowing then the characteristics of the mapping units, and having synthesized the available knowledge regarding their responsiveness to management, a whole series of simpler maps can be prepared from the master soil map, indicating any particular feature of the soils or any single interpretation such as, adaptability of the soils for alfalfa, apple trees, sugarcane, or other particular crops or rotations of crops, erodibility, present erosion, natural acidity, relief, content of organic matter, and drainage requirements, by developing appropriate groupings of the individual units.

Knowledge of Soil Responses a Part of Land Classification

It would seem to me that herein lies the contribution of soil scientists and agronomists to the general problem of land classification. These soil maps and interpetations are not complete, full-fledged land classifications and should not be so regarded. I wish to make this point with all the emphasis I can to soil scientists and agronomists, as well as to economists, geographers, and others. The job of the soil scientist and agronomist working together is to synthesize their results in such a way as to make predictions as accurately as possible in terms of yield and quality and in terms of the effect upon future productivity that will follow from the use of particular

practices. For some soil types there are few alternative practices that can be recommended; for others there are a great many. In other words, on the same soil type, there are many roads to ruin and many roads to success. What may be a desirable practice on one area of a soil type may be a ruinous practice on another area of the same soil type, even perhaps on an adjoining farm having a different proportion of soil types or a manager with different ability. The cost of a particular operation may be $5.00 an acre in one place, and perhaps $1,000 an acre on the same soil type in another place. To develop land classification all of these other considerations must be taken into account. Every time one says that a certain piece of land is productive, in reference to an ordinary operating farm or prospective farm at least, there is implied in that statement a prediction of agricultural prices and of management costs just as much as if they had been stated in dollars and cents. Soil scientists are not equipped to make these predictions. They are equipped to make predictions about the influence of liming on the yield of alfalfa on a particular soil type. They can make predictions in regard to the effectiveness of a certain type of terrace on a definite soil type. With the help of horticulturalists, they can make predictions regarding the yield of apples to be expected from certain varieties on certain soil types under defined systems of management. Economists and geographers are not equipped to make these kinds of predictions nor are they equipped to tell soil scientists how to go about making them, any more than the soil scientists are equipped to make price predictions or explain how they shall be made.

Thus it seems to me that many groups of specialists have certain contributions to make to a general system of land classification. They must be mindful of their limitations and of the contributions of the others. Each must so organize his data that they may be coordinated with the data of the others. To do this each must understand the general problem and the objective of the land classification clearly, which is the only basis for successful coordination.

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CONTRIBUTION OF COOPERATION TO THE PROBLEM OF DISTRIBUTION

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THE TERM "cooperation" in its literal meaning signifies working with another, or others. In this sense cooperation may apply to a vast variety of human activities and relations. In whatever manner two or more men may join forces in doing a task, that is cooperation. Since about 1830, the term cooperation has been given a specific meaning as applying to a particular type of business organization. These distinct meanings of cooperation may lead to confusion and hazy thinking. Cooperation as used in this paper applies to the business organization.

The problem of distribution pertains to the sharing in the national income. Individual shares of the income are affected by the bargaining power of the various individuals and groups in production. Ownership and control of productive capital may add to bargaining power. The problem of distribution involves the organization of the productive groups of society and the forces at play effecting the division of the proceeds of production. A suggestion of ability to solve the problem of distribution infers a standard or ideal as the goal. What this may be in a particular case may depend upon one's economic status as well as one's economic and social philosophy. The conservative capitalist may have quite a different answer in contrast with the revolutionary communist.

The salutary consequences that cooperation may exercise on distribution depend both upon its effect on the productivity of economic activity determining the amount of the income and upon its influence to bring about a more equitable sharing of this income. If cooperation should result in lessened productivity, a more equitable sharing of the smaller income might mean a net loss in general welfare. Thus the relative efficiency of the cooperative enterprise in contrast with enterprises under other types of business organization is a matter of major concern. In no country has cooperation attained to anything like a predominant position in the economic system. Thus experience does not afford a complete demonstration of what cooperation can accomplish. This means that the advocate of cooperation must rely, to a considerable extent, upon the theory of cooperation to prove his case, supported by such concrete evidence as cooperative experience may have to offer.

In 1937, President Roosevelt appointed a committee of six members to make a study of consumers' cooperatives. It seems significant that this committee in carrying out its assignment went to Europe. Consumers' cooperatives are of minor importance in the United States. Agricultural cooperatives as agencies for the selling of farm commodities and the buying of farm supplies have made much greater progress. Farmers' cooperatives handle farm products of a total value of about two billions of dollars annually which is about 25 per cent of the farm value of all agricultural commodities. In terms of the complete marketing operation from farmer to ultimate consumer, the agricultural cooperatives perform something like 10 per cent of the job of marketing farm products.

Philosophy of Cooperation

Each movement which would reshape the economic system according to its particular specifications, whether communism, syndicalism, fascism, or socialism, has developed its own ideology and philosophy. In England, cooperative leaders and members have for years been looking towards a cooperative commonwealth. Their economic philosophy orients around the consumer. All factories and agencies of marketing are ultimately to be owned by the consumers' cooperatives. Even the sphere of the farmers' cooperatives are to be invaded. The Cooperative Wholesale Society has established its own milk plants, creameries, and bacon factories. Vast tea plantations are owned and operated in Ceylon. Large scale farming is being tried in England on 70,000 acres. Cooperative leaders in Sweden and Finland have no such grandiose outlook for their cooperatives. The chief objective of cooperatives in these countries is to restore and maintain free competition. The ideal is to expand the cooperatives just far enough to insure efficiency in industry and competitive prices. In the United States thus far, cooperatives are viewed as an ameliorating force in solving more or less isolated problems obstructing the forward progress of farmers and consumers. Not much thought has been given by persons in general to cooperation as an integral part of the present-day economic system.

The citizen of a conservative temperament, though realizing the many weaknesses in modern capitalism, may become apprehensive at the thought of a drift towards communism or fascism. Such a citizen should be interested in examining the possibilities of expanding the sphere of the cooperative type of organization.

If cooperatives are to assume a more important role in economic life they may grow into their greater responsibility either by entering fields now unoccupied by individual or group businesses, or by being substituted for individual or group businesses already in operation. There is little prospect at present that cooperatives will expand appreciably in the near future. The future of cooperation depends upon the will, the desires, and the ideals of the people, together with the impressions made by the advocates of cooperation. It is safe to assume that cooperators as an organized minority group will never force their wishes upon the majority through terroristic methods.

Cooperation and the American System

To suggest change is to invite resistance. Naturally the spread of cooperative business meets with opposition. Business men fear that they are being displaced. Men of conservative leanings may dread that socialism or communism is gaining a foothold under the guise of cooperation. Men of more radical and revolutionary propensities may view cooperation as sugar-coated capitalism. The most sweeping indictment is that cooperation violates the American System, or the American Way of Life. This raises the fundamental question, What are the principles and characteristics of the American System? Quite generally accepted ideas and popular conceptions regarding economic, social, and political life may lag current developments. The present is often interpreted by conditions and circumstances which obtained in the past but have now been replaced by changed conditions and circumstances. It is difficult to keep one's philosophy abreast of current developments.

Individualism looms large in the economic order called the American System. It is assumed that the individual has both the right and the opportunity of choosing his own occupation, trade, business, or profession. The tantalizing lure held before the individual, even the humblest, is the possibility of climbing from the lowest rung of the ladder to the very top in leadership, influence, wealth, or renown. An equal chance through free competition, industrious application, and frugal and thrifty management of one's resources are assumed to bring merit to the top.

The individual as the prime mover in economic life has been largely replaced by the corporation. Nine-tenths of the manufactured products in the United States are turned out by some 60,000 manufacturing corporations. Chain stores have invaded the domain

of the small neighborhood retailers. Large integrated business concerns for the processing and marketing of farm commodities have, to a considerable degree, displaced local dealers in farm products. Nine-tenths of the population live upon wages and salaries with the ownership of but a slight portion of the total property.

The Capitalistic System

The American economic system may be described by the term capitalism. According to Sombart, "Modern capitalism made its appearance with the development of the capitalistic enterprise. It represents the form through which an independent existence is granted to business as such. By the combination of all the simultaneous and successive business transactions into a conceptual whole an independent economic organism is created over and above the individuals who constitute it."

Under capitalism goods are produced for the distant and impersonal market. Personal ties between producer and consumer characteristic of pre-capitalistic days are severed. The productive capital is owned and controlled by a few, the many have the status of wage and salary workers. Working to make a livelihood gives place to working for a profit. The spirit directing capitalism is that of acquisition. Sombart aptly describes the acquisitive propensities under capitalism in these words: "Acquisition therefore becomes unconditional, absolute. Not only does it seize upon all phenomena within the economic realm, but it reaches over into other cultural fields and develops a tendency to proclaim the supremacy of business interests over all other values. Whenever acquisition is absolute the importance of everything else is predicated upon its serviceability to economic interests; a human being is regarded merely as labor power, nature as an instrument of production, life as one grand commercial transaction, heaven and earth as a large business concern in which everything that lives and moves is registered in a gigantic ledger in terms of its money value. Ideals oriented upon the value of human personality loosen their hold upon man's mind; efforts for the increase of human welfare cease to have value. Perfection of the business mechanism appears as the only goal worth striving for; the means become an end. The vague notion of progress comes to include only such development as advances in technology, reduction in costs, increase in briskness of trade, growth of wealth."

Sombart seems to say that business in seeking profits tends to

become unscrupulous, cold, calculating, inhuman. The very small group owning most of the property controls the destinies of the propertyless masses. That such an arrangement in the economic world should result in discontent seems inevitable. The havoc brought about by recurring depressions and the inability of the masses to attain to a standard of living at all endurable in light of that of the more fortunate economic groups call attention to possible changes and reforms in the present economic order.

Cooperation as Self-Help

Owen and Fourier as founders of cooperation made two profound contributions to the movement. In the first place, they established the principle that the state was not to be used as the instrument of change; in the second place, they gave impetus to the principle that cooperation means voluntary self-help and self-government. Cooperation never aspires to power by overthrowing the government or by gaining control of it. It will have no part in confiscation of private property. It places a minimum of reliance on governmental action in remedying inequalities and injustices which have developed under capitalism. The methods of cooperation are evolutionary rather than revolutionary. The typical cooperator is not a severe critic of the capitalistic system since in fact he subscribes to capitalism in a modified form. The contributions which cooperation has to offer are made through going concerns organized with a minimum of disruption and disturbance.

The Federal Congress and state legislatures have passed cooperative statutes. This has been done not so much to give cooperatives special privileges as to supplement the acts applying to corporations to the extent that such acts failed to provide adequately for cooperative corporations. The cooperative banks established under the FCA may be viewed as special privilege to the cooperatives. This is not necessarily the case. Federal and state governments have recognized, for years, that the organization of farmers' cooperatives is good public policy. Cooperatives have been under a handicap in obtaining credit. The cooperative banks are in position to furnish credit at a reasonable rate. The supervisory service of the cooperative banks is quite as important as the credit. Before a cooperative is granted credit, it must have a program of operation that will be reasonably certain to assure success. The cooperative is in the nature of a public or social institution in that, on an aver-

age, a much larger group of individuals is involved than usually is the case in a private corporation doing the same volume of business. Furthermore, the charter members of a cooperative assume the same risks of failure as the organizers of a private corporation. The charter members of a cooperative which succeeds, have no opportunity of realizing personal gains from capitalized profits, as is the case with the charter members of a private corporation. Cooperatives in America and abroad have enjoyed advantages over private corporations in the matter of exemptions from taxes, expecially income taxes. In Europe these exemptions are gradually being eliminated. The older cooperatives in Europe are becoming generally agreed that they do not desire any special privileges in tax exemptions or other legal immunities which private corporations do not enjoy. Equal treatment before the law is becoming a fixed principle.

Role of Capital in Cooperative

The need of capital is quite as urgent in a cooperative as in a private corporation. One of the major problems facing a group organizing a cooperative is that of providing for the capital requirements. Robert Owen hoped that a few wealthy philanthropists would donate the capital needed in the self-sufficient cooperative agricultural communities. Later cooperators hoped to create the capital fund from two sources: small weekly contributions of members; and the profits of operation left in the business. In this way it was believed that the capital requirements could be met over a period of 15 to 20 years. Thus cooperators were called upon to make sacrifices out of their meager incomes as well as to forego such profits as might be realized by their cooperatives for an indefinite period in the hope that finally the full benefits of cooperation might be enjoyed. Furthermore, the ownership of the capital in the cooperative was to be in common, a communistic concept of property. No wonder the progress of the early cooperatives was halting and uncertain.

The Rochdale Pioneers took a forward step in the matter of capital accumulation and ownership. The members made weekly contributions of two pence to provide the initial capital. But the members were given stock in equal amounts of the cash contributed. Thus private ownership of the capital in the cooperative was established. The Rochdale Pioneers demonstrated that small weekly

contributions by a large number of members work almost miraculous results in capital accumulations.

Profit-financing has played an important part in the accumulation of capital by cooperatives both in America and in Europe. Private corporations also depend to a considerable extent for increased capital from profits left in the business. In both instances, the profits of the business have their origin in dealings with a mass of consumers. The profits per customer may be small but in the aggregate they may be large. With the corporation these profits belong to the stockholders; with the cooperative these profits belong to the patrons who are the real source of the profits. The cooperative gin associations in Texas are based on profit-financing. Of a total of 246 associations, 157, or 64 per cent, have financed, or are financing, their total investments in fixed assets from profits left in the business. The cash paid in by the members of the 246 associations to furnish capital represents 10 per cent of the investments in fixed assets.

Many of the large corporations strive to obtain a wide distribution of stockholders. If widespread ownership of the business is desirable, then the cooperatives are in step in that the business is owned by their patrons or customers. This principle is illustrated by the Cooperative Wholesale Society of England with its 7,000,000 stockholders owning a business with a capital of about 600 millions of dollars. In this instance there can be no concentration of the ownership of the stock and each member has but one vote.

Institution of Private Property Under Cooperation

The cost of capital to cooperatives, on an average, is considerably less than the cost to private corporations. Cooperatives have a minimum of cost in floating new stock issues. The consumers' cooperatives of European countries quite generally have added a savings bank department to their business. These cooperatives have two main sources of capital funds: investments of members either through outright purchase or through profits left in the business; and savings of members placed in the savings banks. Consumers' cooperatives of England, Scotland, and Switzerland have adequate supplies of capital to carry on every desired activity. The cooperatives furnish members an opportunity of putting their savings to work at a minimum of risk. The soundness of a business based upon the patronage of its widespread membership together

with the fact that cooperative stock does not have speculative value is the foundation for the security of the capital structure of the cooperatives. During the depression, about the only stock in England that did not depreciate in value was that of the Cooperative Wholesale Society. Cooperative stock does not have speculative value. Cooperative profits are not distributed on the stock. Hence there can be no capitalized value of stock. Persons opposed to speculation in stock should endorse this feature of cooperatives.

Under capitalistic economy, ownership of capital is of paramount significance. The owners of capital direct and control the productive processes. A cooperative group has little opportunity of functioning in a business way unless it gains ownership and control of capital. This aspect of cooperation needs more emphasis than has been given to it in the past. Cooperative members need to be made more conscious of the importance of their equities in their business. For this purpose, a nominal dividend on the capital is desirable rather than a distribution of all profits on the patronage basis. For centuries private property has been defended on the basis of the good results flowing to the individual property owner. Property is recognized as needful in developing personality. The increased security arising from the ownership of property has a salutary and stabilizing influence. Since property ownership is so desirable, increased concentration during the past 100 years has been a social loss. To the extent that cooperatives widen and universalize private ownership of productive capital, they should represent a most desirable development in the economic system.

Democracy in Business Under Cooperation

Capitalism as constituted under the corporate form is aristocratic. Control of economic affairs rests with the stockholders owning the majority interest. This means that a relatively few men control business affairs. The practice of a capitalist serving on the board of directors of a great number of corporations still further tends in the direction of minority control. For a hundred and fifty years great stress has been placed on democracy in government. Democracy in government is being challenged by the mighty minority controlling business. The one-man-one-vote principle in the cooperatives is democratic. Hence cooperation brings democracy into business. To the extent that cooperative business may occupy a larger sphere in the economic system, democratic principles of control will be

brought into business. This in turn may prove a bulwark in protecting democracy in governmental affairs.

One weakness of competition under capitalism is that high profits in a certain business invites the establishment, without restriction of added competing business concerns. Volume of business is thus reduced per concern. A smaller volume may materially increase the cost of operation per unit. A profitable business for ten concerns may be turned into losses for 15 concerns. There are too many grocery stores; too many filling stations; too many cotton gins. The customer feels little, if any, obligation to patronize a particular private business so that it may operate at a profit. This situation may be quite different in a cooperative business. If the cooperative may enroll a sufficiently large membership, an economic volume of business may be assured regardless of the number of competitive concerns. If the members realize the significance of volume as a factor in cost of operation, a powerful incentive should be aroused to patronize their own cooperative business. Thus cooperatives with an enlightened membership may escape the losses resulting from too many competing concerns.

Costs of Operation Reduced Under Cooperation

The experiences of consumers' cooperatives in Europe show that members will travel a greater distance in patronizing their own store than is the case with the customer of private stores. Members display greater patience in waiting for service during rush periods than do customers of private stores. As a consequence, the volume of business per store runs higher for the cooperative than the private. Sales per employee likewise are greater in the cooperative than in the private store. President Roosevelt's committee was told that eight shop assistants in a cooperative store in England could handle a trade of 1000 pounds a week, whereas 20 shop assistants would be required to handle the same amount of business in a private store. In Switzerland the committee was told that each employee in the Basle consumer cooperative had a turn-over of 42,500 francs, while the average turn-over in private stores was 20,000 francs. In Sweden the committee found the turn-over per employee in the cooperative stores to be 50 per cent greater than in private stores.

In Texas about 10 per cent of the gins are cooperative. These

gins do about 25 per cent of the ginning. According to the census ginning reports, the gins of a portion of East Texas ginned an average volume per year of 845 bales during the period 1932–33 to 1938–39. During this same period, the cooperative gins of the same area ginned an average volume per year of 1745 bales. The cost of ginning 845 bales for an East Texas steam powered gin of average efficiency and investment is $4722, or $5.59 per bale; the cost of ginning 1745 bales is $6324, or $3.62 a bale, or 64.8 per cent of the cost of ginning 845 bales. Assuming an income of $6.00 a bale from gin tolls and net profits on patterns and cottonseed, the gin with a volume of 845 bales would realize a net profit of $348 while the gin with a volume of 1745 bales would realize a net profit of $4146. The low volume gin would earn a net profit of 2.2 per cent on its investment of $16,000 while the high volume gin would earn a net profit of 25.9 per cent on its investment of $16,000.

Cooperation and Monopoly Control

The American way of dealing with tendencies toward monopoly, unfair competition, restraint of trade, and the like, is through legal channels. Faith is placed in Anti-Trust Laws to maintain competition. It would appear that the success of governmental control has been checkered. Countries like Sweden, Denmark, Finland, and Switzerland have little, if any, legislation dealing with trust or monopoly regulation. Leaders in these countries express serious doubts that monopolies can be controlled effectively through direct governmental action. The "trust busters" in these countries are the cooperatives. The consumers' cooperatives of Switzerland broke up a chocolate combine by buying their supplies from the independent manufacturers and selling the products to their members below the price set by the combine. Monopoly control in Sweden, Denmark, and Finland has been routed by the cooperatives entering the manufacturing field for such commodities as margarine, flour, bread, binder twine, fertilizer, and galoshes. The trust manufacturing galoshes in Sweden realized a net profit of $12,000,000 in 14 years on an investment of $1,000,000. Galoshes were selling at $2.27 a pair. After the cooperative was manufacturing its own supply, prices fell to 93 cents a pair, or 41 per cent of the trust price. At the lower price the demand for galoshes has doubled. The cartel handling electric light bulbs was sheared of its power to set mo-

nopoly prices by the cooperatives of the Scandinavian countries jointly establishing a factory for the manufacturing of bulbs. Prices dropped to 60 per cent of the trust level.

The Scandinavian cooperatives never undertake to enter the manufacturing field so long as the private manufacturers give good service and reasonable prices. The success of the cooperative manufacturing ventures is attributed to the fact that the cooperatives have outlets through their own consumers' stores. Thus the cooperative factory has no worry of reaching the consumer with its wares. This would indicate that cooperative manufacturing as a means of restoring free competition in American industry would have little chance of success so long as consumers' cooperatives have not been developed. The organization of consumers' cooperative stores in the United States faces several barriers. In the first place, the American consumer does not count pennies as does the typical European consumer. The American hopes to improve his economic status by making more money rather than by more careful spending of his present income. In the second place, the consumers' cooperative stores in European countries have brought efficiency into retailing in much the same way that chain stores have in the United States. This means that cooperative stores in the United States do not now have the opportunity of showing the great improvements in retailing that such stores did in Europe.

Profits Under Cooperation

The price policy adopted by the Rochdale Pioneers was to charge the competitive price. Many earlier cooperatives had failed by cutting prices and thus inviting retaliation from private competitors. In charging the going price, savings may be returned to members in the form of patronage dividends. For an infant cooperative, charging the competitive price is a wise policy. After a cooperative is thoroughly established it may become the leader as well as the follower in price policy. If the members of the cooperatives, like those of the agricultural cooperatives in Denmark, desire large patronage dividends, the cooperatives will take the lead in maintaining prices at a high level. The cooperators of Sweden with their fixed purpose to vitalize competition take a different view on price policy. They reason this way. If prices are maintained at a high level, the inefficient competitor may survive. The efficient competitor will make large profits from which he may expand his business in the direc-

tion of monopoly control. By lowering the price, only the more efficient competitors can survive. Profits will be held at a reasonable level. The Swedish cooperatives attempt to sell at prices which will enable them to pay patronage dividends of about three per cent on the purchases of members.

For generations, economists have struggled with the social and economic consequences of profits. Whether profits in the long run tend toward a minimum, or whether profits in a world of concentrated ownership of capital lead to grave economic maladjustments is of small concern in a cooperative world. Profits cannot exist in a cooperative in the sense found in private business. Essentially, cooperatives are operated at cost. Any surplus is virtually in the nature of an overcharge for services rendered or for products sold. The patronage dividend paid to the member either means a higher price for commodities sold for patrons, or a lower price for service or commodities bought by patrons. No cooperator can live upon an income from investments in his cooperative as profits are paid as dividends on the business of patrons and not upon the capital of the cooperative. Those individuals, whatever their economic philosophy, who condemn profits should find support for their attitude in the cooperatives. Thus in cooperatives, profits are widely distributed. The evils of the profits going to a small group are eliminated.

Attention has been called to the acquisitive spirit of capitalism subordinating everything to profits. Cooperation brings a humanizing influence into business. As Professor Harold Laski pointed out in the 1936 Hodgson Pratt Memorial Lecture on the Spirit of Cooperation, "civilizations perish because those who control them prefer acquisitiveness to justice . . . The very essence of cooperation is the denial that the profit-making motive can ever produce a just and humane society." Cooperative management faces the task of satisfying a large group of human beings rather than that of piling up dividends on capital invested. The consequences of the business relations of the members with their cooperative are widespread. Many of the members of the Rochdale Pioneers as patronage dividends were paid, for the first time in their lives, had cash in their pockets. Many members called for a refund of their stock for no other reason than the satisfaction of seeing, in cash, their investment in the cooperative. The pride of ownership of their business has had a stabilizing influence. Consumers' cooperatives by insist-

ing on cash trading have done much to install thrift and foresight in the members. Active participation in conducting the affairs of the cooperative has made business men out of the members. The farmer members of a cooperative marketing association learn where the markets are for their commodities. They become aware of what consumers want in the way of quality. They become conscious of their competitors both nearby and distant. Their economic world takes on reality.

Summary

Cooperation is individualism expressing itself in associated action. Cooperation is founded on self-help with a minimum of governmental participation. Cooperation recognizes private property as fundamental in a society of free men. Cooperation helps to preserve the institution of private property by making it universal. Cooperation brings democracy into business through the one-man-one-vote principle in contrast with the aristocratic tendencies of the private corporation with its share-voting of a concentrated ownership of stock. Cooperation refuses to recognize profits as the motivating force in industry. Cooperation operates to serve its members at the lowest possible cost and not for profits on its investment. Cooperation puts its faith in abundance and low prices in that service, not profits, is its objective. Cooperation supports the competitive system—competition between efficiently operated cooperatives and private concerns. Cooperation eliminates speculation in equities because stock in successful cooperatives cannot have a value above par. Cooperation makes its members an articulate part of the economic system in which they live. Finally, in the words of the great English economist, Alfred Marshall, in his presidential address to the Cooperative Congress in 1889, cooperation is "at once a strong and calm and wise business, and a strong and fervent and proselytizing faith."

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PROCEDURES WHICH INCREASE THE USEFULNESS OF FARM MANAGEMENT RESEARCH*

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THE PURPOSES of this paper are: (1) to outline available sampling designs and statistical procedures which are appropriate for the collection and analysis of farm management data particularly useful both to individual entrepreneurs and to administrators of farm programs, (2) to outline briefly the advantages which data obtained by valid sampling methods possess over those collected otherwise, (3) to suggest a plan by which duplications on the part of government and state agencies in the collection of farm data can be avoided.

Two kinds of information are demanded of the farm management specialist: (1) that which will assist farmers in their entrepreneurial decisions and (2) that which will assist administrators and others in determining the effects of agricultural programs.

With limited resources, the farm management specialist is forced to some kind of sampling procedure in the selection of his material for study. He requires a small group of farms which will represent adequately the larger group in which he is interested. Of prime importance, then, is the method by which this sample is to be selected. He requires a method which will ensure representativeness and avoid bias in all those characteristics which he proposes to investigate. Only if his method of sampling is sound can he make inferences about the larger group with any confidence.

Methods of sampling which ensure representativeness have received the attention of many investigators[1] dealing with social and agricultural data. Neyman in particular, working with data and problems somewhat similar to those being considered here, con-

* Journal Paper No. J-801 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 708.

[1] Among the foremost writers and writings in this field the following can be mentioned:

A. N. Kiaer, Bulletin de l'Institut International de Statistique, Vol. 9. 1895.

A. L. Bowley, Working class households in Reading. Jour. Roy. Stat. Soc. 76: 672–701. 1913.

Adolph Jensen, Bulletin de l'Institut International de Statistique. Vol. 22, pts. 1 and 3. 1926.

Jerzy Neyman, On the two different aspects of the representative method: the method of stratified sampling and the method of purposive selection. Jour. Roy. Stat. Soc. 97: 558–606. 1934.

cluded that the best method of achieving a representative sample was that in which the total group is divided into subdivisions and selections made at random from within these. This procedure is known as the stratified-random method of sampling. Since it is beyond the scope of this paper to deal with the whole problem of sampling procedures we shall limit ourselves to a discussion of the one method, the stratified-random method, because it appears to be the most suitable for the kind of problems considered in this paper.

To illustrate the technique of obtaining a representative sample of farms by the stratified-random method, let us use the following example. We are required to select a small group of farms which will adequately represent all the farms in certain area, say a state, in a large number of characteristics. Let us assume that for those characteristics in which we are interested, we know that farms are relatively more alike within type-of-farming areas than within the state as a whole, and therefore we chose to use this knowledge as a basis for stratifying. With the farms of the state stratified into the several type-of-farming areas, our next step is to devise a scheme which will provide the random selection of farms within each of these areas. Since we do not have an adequate or accessible list of all the farms within these areas, it becomes necessary to look for other means. It has been found, for example, that it is quite simple to make a random selection of some geographic unit such as a section or quarter-section.[2] The sample may be composed of those farms the farmsteads of which are situated within the boundaries of these units. By this method farms are selected in groups and because of this, some loss in statistical efficiency may occur in sampling those characteristics for which contiguous farms are more alike than non-contiguous farms. However, this loss in efficiency is entirely an independent matter and does not in any way impair the representativeness of the sample. It is important to mention at this point that by using this device we now have a sample composed not of *farms* but of *groups of farms* selected at random within the type-of-farming areas. It is often important to bear this in mind in the subsequent analysis of the data. It must be remembered also that this is merely an example and that there are numerous other schemes which might work as well or better. The

[2] Raymond J. Jessen, An experiment in the design of agricultural surveys. JOUR. FARM ECON. 21: 856–863. 1939.

point to be made here is that a representative group of farms can be easily selected by the stratified-random method of sampling.

Since sampling farms in groups seems to be a suitable way of minimizing enumeration costs per farm and of achieving randomness in selection, the question naturally arises: How large should these groups be? Studies[3] indicate that for statistical reasons these groups should usually be kept as small as possible, but of course enumeration costs are usually less per farm when the groups are large. Also, the best size of group depends upon the characteristics being measured and upon the locality. The best size, therefore, is not a matter to be determined for once and for all—it is a matter of circumstances and one which probably has some flexibility.

To estimate properly the size of sample suitable for a given inquiry, one must know (1) the precision desired, (2) the nature and amount of variability of the characteristic being measured and (3) the kind of sampling procedure to be used. Probably in many cases limited resources will be the dominating determinant—in this case the goal of the investigator will be the maximization of precision with the given resources, and, of course, with the given variability pattern of the character of inquiry. The question of precision has several aspects. If precision is desired on an overall measurement say, for example, the average net income of farmers in a state, then to maximize that precision, with the stratified-random sampling method described in the above example, we should allocate our total sample among the type-of-farming areas such that the number of sections (say) in the partial samples are proportional to the product of the total number of sections in each type-of-farming area by their standard deviation.[4] On the other hand, we may be interested in obtaining equally good estimates of the average net income of farmers within each of these areas, in which case the number of sections in each partial sample should be proportional to the squares of their standard deviation in each type-of-farming area. Questions on proper size of sample and on how much precision is desirable and sundry other sampling problems are not going to be answered by anyone very accurately without that person's knowing something about the problem at hand. In this field, cut and dried answers are more dangerous than useful.

[3] See Neyman (*loc. cit.*) and R. J. Jessen, Unpublished report (1939). See also: An empirical study of this problem: Research in sample farm census methodology, Part I, 1939. U.S.D.A., Agricultural Marketing Service.

[4] Neyman (*loc. cit.*).

Men in farm management have realized that the research in the field would be more useful if the farming universe were divided into broad geographic or physical units in which the patterns of farming were similar rather than into political units in which there is seldom any relationship between the important farm characteristics and the political universe. Area or group delineations that delimit groups with broadly similar production opportunities and, therefore, groups of farmers who could make similar adjustments to changes in external forces is what is sought.

By assembling certain physical, biological, economic and sociological data the farm management specialists have subdivided broad heterogeneous regions into type-of-farming areas. Each type-of-farming area exhibits certain general characteristics which differentiate it from other areas. General physical conditions are similar within areas and the boundaries follow closely physical rather than political boundaries.[5]

The development of type-of-farming studies and the resultant classification of general farm patterns have been important strides in the progress of describing the agriculture of an area and of subdividing or stratifying large areas into units exhibiting more uniform conditions than prevail in the general area. Within type-of-farming areas, however, considerable heterogeneity exists. Similar farms operated in a similar manner are found in adjacent areas. The proportion of farms of a given type, however, varies as among the type-of-farming areas.

The farm management worker is interested in the individual farm; its resources; its operation and management; its returns; its relationship to other farms and its relationship to the entire economy. For this reason certain segments of information on a given farm are not very useful without other data closely associated with the item. For example, a price analyst may be interested in estimating the prevailing price received for butterfat by farmers in a given universe at a given time. In this instance, there is only one item of inquiry—namely, price—and the sampling procedure is simple. The

[5] Foster F. Elliot, Types of farming in the United States. 15th Census of the United States. Census of Agriculture. U. S. Department of Commerce, Bureau of the Census, Washington, D. C.

C. L. Holmes and C. W. Crickman, Types of farming in Iowa II. Iowa Agric. Exp. Sta. Bul. 374. 1938. Note how closely boundaries of types-of-farming areas in figure 38 parallel boundaries of general soil areas in figure 43.

I. G. Davis, Types of farming and type of farming areas in Connecticut, Connecticut Agr. Exp. Stat. Bul. 213, 1936.

sampling procedure for the farm management specialist is more complex because there are many more items in his field of inquiry.

The multi-item study with each item somewhat related yet in many cases quite independent of other items certainly presents a quite different sampling problem, especially where precise estimates on individual items is desired. What may be an excellent sampling procedure for one item, may be inadequate for another. Some kind of compromise between the more important items must be sought.

Since the farm is the unit of observation for the farm management specialist and since its characters, that is, those items one measures or observes, are somewhat oriented to what the farm is directed to do, it is to be expected then that a type-of-farm grouping might also bring about grouping of the related characters. Criteria, then, must be developed and refined to the extent that farms meeting the qualifications of one specific type will differ appreciably in statistically measurable characteristics from other types. The criteria should be such that hog-dairy farms, for example, in Indiana will resemble hog-dairy farms in Iowa and hog-dairy farms in any area will differ from cash-grain, hog-beef fattening or other types in any area for those important items associated with type. Criteria need be developed to classify only major types of farms. (Detailed or intensive studies bearing on small segments of the universe will be developed as "particular," projects as a result of the findings of the broader studies objectively defined.) A planned procedure of sampling farms together with the development of criteria and the classifying of farms over wide areas will be most useful in studying and developing broad regional programs which the BAE has undertaken. This will also avoid much unnecessary duplication by experiment stations.

A classification of types of farms on the sole basis of certain proportions of the gross income from given sources is not adequate for classifying farms for the purpose of making continued economic estimates. Two of the major disadvantages of such a method of classifying are: (1) Two or more farms may have the same proportion of income from like sources, yet the farms may differ materially from each other in several major variables. (2) Prices of certain commodities may be distorted in two periods to the extent that a given farm may be classified as one type in one period and another type the next period. The general physical relationships of one enterprise with another may be identical in both periods.

The method of classifying types of farms on the basis of productive-man-work-units has three major disadvantages: (1) The standard efficiencies of inputs as applied to each enterprise may differ so widely from those of specific farms that the actual relationship of one enterprise with another may be badly distorted and the total of the combination far in excess of normal performances. (2) It is difficult to determine standard inputs broad enough to cover a wide area and yet minimize variability. (3) Considerable labor and time are involved in applying the standard inputs to a farm to determine the type of farm. Neither method alone, especially the income method, is well adapted to statistical manipulation to determine and test variability within and between types.

In a recent study by the Department of Economics and Sociology of Iowa State College in cooperation with the Division of Farm Management of the BAE an attempt was made to develop criteria which would be useful for classifying farms by type. The farm schedules obtained from the Iowa sample-census study for 1938 were employed as basic data for the study. The criteria employed were mostly physical in character, were few in number, and were easily applied. Preliminary results indicate that type-of-farm groupings show far less internal variability than that found among all farms within a type-of-farming area and that farms within a type group are similar in major characteristics regardless of location in the state.[6] This study is preliminary, of course, and is based upon data from a state in which variations in farm patterns are less extreme than those found in many other states.

Annual data obtained from a small sample selected at random, perhaps by the randomized block sampling method, adequately stratified with regard to the more relevant items, would be extremely useful in farm management work. If obtained annually, the sample need not be large. This would be particularly true if a portion of the observations were paired each year or re-enumerated for two successive years. Complete enumeration of all items on each farm perhaps would not be necessary. This would reduce the time required to enumerate a farm.

This body of data would especially be useful for measuring year to year changes and for the analysis of probable effects of alternative government policies on various farm groups. It has been quite

[6] Emil H. Jebe, Classification of farms by types in Iowa. Unpublished report, Iowa State College. 1939.

generally agreed that government programs have not been equally effective on all farms, but no general measure of the effectiveness has been devised. The information may be handled in such a way that subdivisions such as general type-of-farming areas (areas embracing several states), types of farms within a type-of-farming area, states, type-of-farming areas within a state, or even smaller groups may be studied. Information obtained annually would permit immediate and timely analyses.

A continuous body of data would be valuable in studying trends in farm enterprise production and organization and in ascertaining farmers' response to prices, technological changes and other stimuli which influence farmers in their farming operations. Use could be made of such data in the estimates of costs of producing major commodities, estimates of fertilizer use and the construction of indexes of farm income by type and size of farm.

This body of data would supply requisite background information for more detailed studies; for example, a tabulation of the schedules obtained from a sample-census survey may indicate that a number of farms having similar characteristics in several major variates definitely fall into a group which might be called low-income farms. These farms may be revisited with a view of obtaining additional information on operations and management and perhaps complete information as to the use and distribution of resources. Characteristics of these farms may be compared with those of other farms. It is hoped that studies of this sort might suggest the remedial measures needed.

Wide use could be made of current factual material in teaching and illustrating principles of production economics.

Studies dealing with the more complex internal relationships of the farm could be improved if they are based on relatively homogeneous segments of the larger agricultural universe. Workers in the field differ in the value they place on the individual case studies.[7] Such research procedures and informal statistical methods are most likely to be fruitful when employed by workers of wide experience. Their fruitfulness is also greatest when employed in conjunction with some statistical analysis of a representative sample of the universe of which they are a part. The earlier statistical analysis of the

[7] For a description of this research technique, see Research Method and Procedure in Agricultural Economics. Social Science Research Council. Mimeographed Publication 2: 300–309. August, 1928.

sample data will make possible the selection of cases the characteristics of which are of particular interest.

The large and immediate gains of adopting a uniform method of farm classification which applies to areas such as the Cotton and Corn Belt becomes apparent. If appropriate sampling techniques are used together with a uniform farm classification, the results of studies in one state or part of the area are readily applicable to other sections of the state or area where farms of the same classification are located. Much of the existing duplication of studies in adjoining states could be eliminated by fully utilizing the results of pertinent studies in adjoining states. It is also important that duplication be avoided in order to guard against farmer resentment brought about by their being besieged by enumerators asking the same set of questions. This kind of thing is already being reported in some areas and appears to be getting worse.

Under such a system research programs in the various states would tend to supplement one another gradually, each working on the problems important to it which are not being satisfactorily studied by other states in the area. More cooperation between the states and the BAE on mutual problems would be another outgrowth.

Many states already recognize the value of having current data on a small representative group of farms in the state but because of financial limitations see little or no prospect of obtaining them. Observations based on a knowledge of the present utilization of several state budgets for farm management research are that a substantial part of the present resources go for the maintenance of a continuous fund of current information as basic data for several types of analyses and for teaching purposes.

In several states this is tied up with extension work in farm management and centers on keeping farm account records and analyzing them for cooperating farmers. The use of a part of these research and extension funds now devoted to obtaining continuous data supplemented by funds from the BAE and the AMS would make possible the collection of current data on at least a small representative sample which would be useful to all four cooperating agencies.

Plans are already under way in Iowa to experiment with the possibility of making several visits during the year to a group of 125 to 150 farms selected at random from a type-of-farming area. These

visits will be spaced so as to obtain timely data for the AMS (January 1 inventories, April planting intentions, July crop acreages), on farm practices, income and expenditures wanted by the department of agricultural economics and the BAE. This experiment is to test both the possibility of getting more information than can be obtained from one visit and to test memory bias. By using a well trained field man on this route, management counsel can also be given at each visit and a farm record for the year summarized if the individual wishes to keep one. Looking forward to making such a procedure a permanent program one-half to one-third of the farms would have to be dropped each year and additional farms drawn at random and added to measure current changes in farming and to keep the sample representative. If the experiment proves that this technique of obtaining data and conducting extension work is feasible, the added value of the data might well compensate for the additional cost of substituting a network of these routes over the state for a part of the membership of the present farm business associations where a substantial part of the cost is now borne by the cooperating farmers.

The demands of the 40's on farm management will exceed those of any previous decade. Substantial resources are being employed in the field. The time is at hand for bold and continuing experiments in the utilization of known statistical techniques to increase the usefulness of these resources in meeting the demands made on them.

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NOTES

THE STUDENT WITH AN URBAN BACKGROUND AND AGRICULTURAL ECONOMICS

THE RECENT symposium on "Training and Recruitment of Agricultural Economic Personnel" conducted in THIS JOURNAL has clarified some problems and indicated possible solutions.[1] Except in passing, however, an important question was little touched upon in this discussion. This is the problem of the type of background desirable for students majoring in this field and expecting to make it their life work.

What seems to be the prevalent opinion among agricultural economists may be indicated by two quotations from this symposium. Dean Cooper has asserted bluntly: "In general, students lacking farm experience should be sifted out at the time of registration for the first year of graduate work. They will be deficient in the kind of agricultural perspective that comes only by informal absorption while growing up on, or operating a farm."[2] Somewhat more cautiously, Professor Hill has written: "While there are exceptions, he [the student entering agricultural economics] will ordinarily do better if he has a farm background. . . . "[3] It is the purpose of this paper to question these views, and to indicate some considerations which may make it advisable to encourage at least a moderate number of capable urban students to enter this field.

Two main counts compose the indictment against city boys in agricultural economics. First, it is argued, they are ignorant of the fundamentals of farming and its everyday activities; second, they have not the usual attitudes toward rural life. That the first count is vital cannot be gainsaid. To take an example from another field of economics, it is said that Alfred Marshall was so familiar with factory production that he could make an accurate estimate of a worker's pay by merely watching him labor for a few minutes. A. C. Pigou's laments at his own lack of practical knowledge also are well known. Hence the first count merits serious consideration. It will be argued here that the second half of the indictment is actually a reason for desiring urban youths in farm economics work.

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[1] Cf. the issues of THIS JOURNAL for February, May, and August, 1940.

[2] Training and recruitment of agricultural economic personnel: IV. A training program. JOUR. FARM ECON. 22(3): 558, 1940.

[3] *Ibid.*, VI. An administrator's view, p. 563.

As regards the basic familiarity with farm work, boys and girls growing up amidst it undoubtedly have an advantage. Nevertheless, practically all departments of agricultural economics require their students to take formal courses in agronomy and related subjects. Is there any reason why a student with an urban background, an interest in the field, and ability cannot take such courses and gain this fundamental knowledge? Work on a farm during a summer or some similar period might be a further aid in securing the essential *Gefühl* for farm life. As for the superstructure of economics, statistics, mathematics, sociology, and other relevant information, one's ability to learn and understand these would seem to have little relationship to the question of background.

A rural upbringing frequently produces a set of prejudices and attitudes which tend to emphasize the interests of all farmers—or some group of farmers—to the exclusion of all other groups. Thus, the boy who grew up on an Iowa farm may have a dogmatic opposition toward those who grow corn in the South. The son of a New York dairy farmer may find it difficult to appreciate the evils of a trade-restrictive scheme such as the institution of milksheds. An interesting admission of the narrowness which may be contributed by a farm background is given by Henry C. Taylor: "Prior to the time that I went to Europe in 1899, I had no first hand knowledge of agriculture other than that of the Corn Belt of the United States and I always thought in terms of Corn Belt agriculture."[4]

In this same connection we must remember that farm youths able to afford undergraduate and graduate training are likely to be the scions of the more secure farmers. May they not find it difficult to understand and sympathize with the woes of "disadvantaged" groups such as poor tenants, sharecroppers, and laborers? The urban youth is more likely to begin his studies either with an open mind or, at least, with a different bias. Certainly he will be less complacent toward undesirable rural conditions to which the farm lad has become habituated.

The Department of Agriculture—some of whose top-flight men had little or nothing to do with farming until their young manhood—provides some evidence that people with non-farm backgrounds can make valuable contributions in this field.

We may summarize this phase of our presentation by conclud-

[4] Training and recruitment of agricultural economics personnel: I A general view. JOUR. FARM ECON. 22: 2, 1940.

ing that the urban student—at least in a fair number of cases—can master the technical agronomical and related subject matter necessary as a background for agricultural economics. Furthermore, he may frequently approach important problems with a different point of view than most farm boys. He will never be a "dirt farmer," of course, but how many agricultural economists are?

But is it desirable to have urban youths participate professionally in this field? This writer believes it is almost imperative that a moderate proportion of agricultural economists be non-farm people.

Today the problems of our rural population concern all groups in the nation. As social controls—in the form of government regulations, and subsidies—continue and increase, they must be planned and administered with a view to the *national* interest, rather than that of any particular group. Agricultural economists and rural sociologists have already provided many of the research men, the planners, and the administrators for current programs designed to aid farm people. In the future, their participation seems likely to increase. Hence they must view the problems that they deal with and the solutions suggested with concern for other elements of our population besides farmers. If they do not, agrarian demands and aids may become exorbitant and damaging to other group interests, and they may possibly be discontinued. In any event, programs which substantially injure other important elements of our society are unlikely to be of long run benefit even to agriculturalists.

Here is where the urbanite—trained in agricultural economics, sympathetic to the needs of different farm groups, yet alert to the problems of non-farm people and the possible impact of agricultural programs upon them—can be of great aid. Looking at things from a different background than his farm-bred colleagues, he can be a constructive critic whose cross-fertilization of ideas and proposals may help tremendously.

This is not to accuse contemporary farm economists of seeking to formulate programs which serve only selfish agrarian interests. Anyone who has followed the discussions in this and other Journals, particularly the writings of J. S. Davis, J. D. Black, and O. B. Jesness, knows that such a blanket indictment is inaccurate. Nor is it maintained here that there is a high negative correlation between degree of farm background and objectivity in viewing agricultural policy. Nevertheless—to take one example—something is amiss when most American farmers believe religiously in the parity con-

cept, and take a candidate's adherence to it as a necessary prerequisite for their support. After eight years, this same fallacious idea remains the objective of our chief action program for farm aid. It is difficult to believe that agricultural economists have performed their educational duties successfully when this state of affairs exists. Perhaps if there were a greater proportion of urban people in the profession willing to voice their skepticism of this "politiconomic" monstrosity, we might have a saner objective for agricultural policy. The very fact that they approach farm problems with a different set of preconceptions and values would tend to make such individuals work for a better formulation of what parity implies, but distorts.[5]

The urbanite trained in agricultural economics can be very useful in other fields besides policy. Anyone who has followed the writings of professional and popular general economists regarding agriculture has often winced at the complete lack of understanding or sympathy which is frequently shown. (Carl Snyder's latest book is but one extreme example of this.) Because of their closer contacts with all kinds of non-farm people, these urban students can become liaison agents between Rural America and the rest of our nation. They can help end the reign of misinformation and muddy thinking which beclouds a certain class of writings and opinions on agriculture.

We may conclude, therefore, that if an urban youth is interested in agricultural economics and is willing to apply himself so as to get the necessary training both in the physical and social sciences, there is little reason to discourage him from entering this field. On the contrary, it may be wise to encourage particularly talented non-farm people to work here because of the contributions which may be gained from their different original points of view. They would be especially valuable in the formulation and administration of agricultural policies, and in the shaping of an informed public opinion. This writer does not question the desirability of having most agricultural economists people with farm backgrounds. He believes, however, that a greater proportion than at present should be from urban areas.

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RECEIVED SEPTEMBER 23, 1940

[5] This writer recognizes that in the past agricultural economists from urban backgrounds have not always performed this desirable critical function. Ezekiel and Bean, of course, were the chief original economic apologists for the AAA and parity.

A CHECK ON A MULTIPLE CORRELATION RESULT

RECENT criticisms of correlation and multiple correlation techniques may have given hasty readers the impression that little reliance could be placed in these complicated methods of analysis. Some of these criticisms have been specifically limited to apply only to time-series analyses.[1] Others, however, have been less restrained and may have left the implication that multiple correlation, and especially multiple curvilinear correlation, were dangerous techniques that might readily lead to misleading conclusions.[2] Thus the statement was made,

> "The method of successive approximations described by Dr. Ezekiel led to the further abuse that some configuration in the pattern of a particular set of data might, and sometimes did, as a matter of fact, emerge as a general law of relationship."[3]

In view of the controversy, it is interesting to get a recent check against a "general law of relationship" first tentatively established by correlation analysis many years ago. A study of input-output relationships in dairy farming is now under way as a cooperative project between a number of state agricultural experiment stations and the federal Department of Agriculture. The head of this project, Dr. Einar Jensen, has recently submitted a first progress report on the results secured thus far.[4] In this report he presents a chart which summarizes the experimental and statistical results with reference to the relation between total feed input and milk production, determined while holding constant the productive ability of the cows as previously determined.

These results may be contrasted with earlier measurements of the same relation. These earlier measurements were based upon statistical analysis of experience with herds as a whole under farm condi-

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[1] John M. Cassels, in: A study of fluid milk prices, in concluding his chapter on Analysis of production responses, says (p. 142): "It is possible that the difference between the general characteristics of the two periods might make the producers more ready at one time than at another to respond to the stimulus of price changes."

[2] Wilfred Malenbaum and John D. Black, The use of the short-cut graphic method of multiple correlation, Quart. Jour. of Econ. 52: 66–112, Nov. 1937, and Rejoinder and Concluding remarks, Quart. Jour. of Econ. pp. 346–358, Feb. 1940.

[3] Black and Malenbaum, *ibid.*, Q.J.E., p. 71, Nov. 1937.

[4] Einar Jensen, Determining input-output relationships in milk production, U. S. Dept. of Agr., Farm Management Reports, No. 5, Jan. 1940.

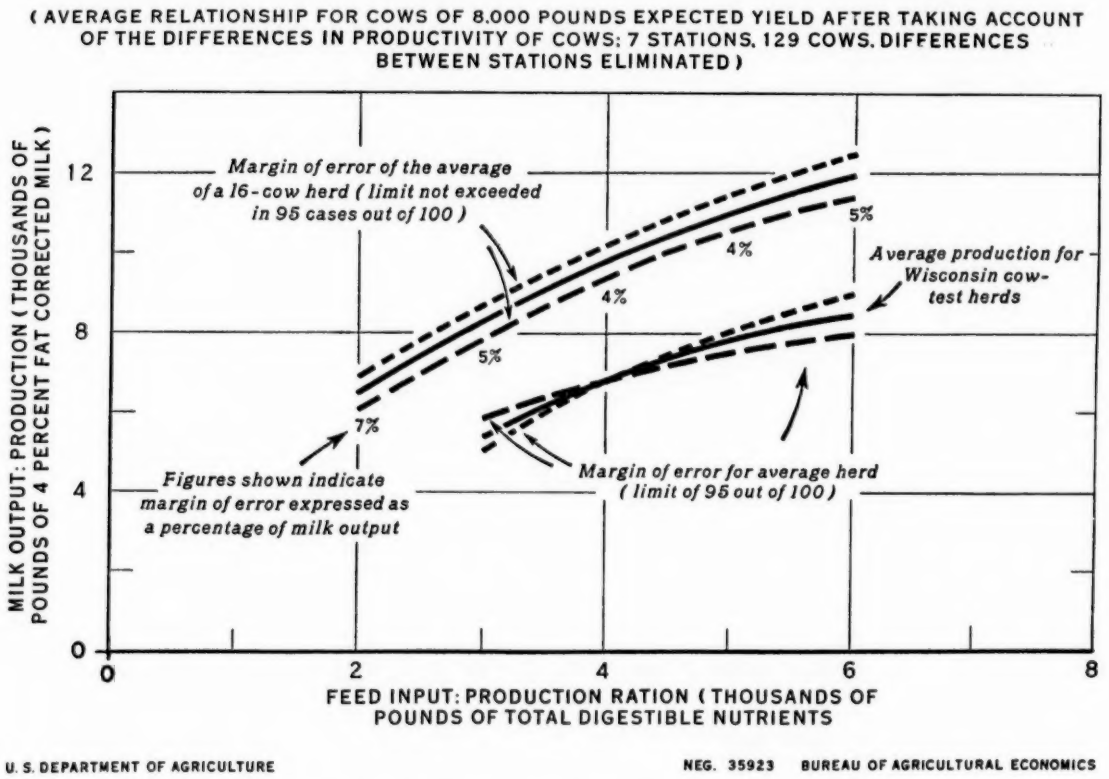

FIG. 1. RELATION OF MILK OUTPUT TO FEED INPUT WITH MARGIN OF ERROR INDICATED.

tions. They differ in that it was not possible in the earlier study to allow for differences in the productive ability of the cows.

Figure 1 reproduces Dr. Jensen's concluding chart, with the addition of the net regression of production on feed input from the earlier Wisconsin study. The only change that has been made in the data as published in the earlier bulletin[5] is to adjust the regression from output for 3.54 per cent fat milk to output of 4.0 per cent milk, so as to be comparable with Jensen's chart. This adjustment was made according to the relation determined in the same study.[6] The range of error for the earlier curve is also shown, computed according to the method given in that study,[7] which differs somewhat from the newer method used by Jensen.

The close parallelism between the two regression lines is striking. The higher level of the more recent results reflects (1) higher productive ability of the cows; (2) a higher percentage of protein in the rations fed (the Wisconsin regression is adjusted to rations with a nutritive ratio of 1:8.47 ; and (3) other differences between the two sets of measurements.[8]

It appears that the carefully-controlled experimental results, adjusted to eliminate differences in innate productivity between herds, have given at least preliminary conclusions which closely parallel the results secured 15 years earlier by correlation analysis of the records of farm operations. The agreement between the slope of two regression lines is closer than might have been expected from the standard errors of each line.

In technical or biological problems, where changes in time are at least not explosive in nature, multiple correlation may apparently yield scientifically accurate conclusions, which hold true over considerable periods of time.

MORDECAI EZEKIEL

United States Department of Agriculture
RECEIVED JULY 6, 1940

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[5] M. J. B. Ezekiel, P. E. McNall, and F. B. Morrison, Practices responsible for variations in physical requirements and economic costs of milk production on Wisconsin dairy farms, Wis. Agr. Expt. Sta., Res. Bul. 79, p. 24, August, 1927.

[6] *Ibid.*, p. 27.

[7] *Ibid.*, p. 21. The range charted is 3 times the probable error, which corresponds approximately to the odds of 95 out of 100.

[8] The note in the following pages written by Dr. Jensen explains these other differences, and makes allowance for them.

COMPARISON OF RESULTS OF TWO METHODS OF ANALYSIS

MORDECAI EZEKIEL has used in an interesting way some preliminary results of current experimental input-output studies[1] as a check on an earlier correlation study dealing with input-output relationships in milk production.[2] It should be pointed out that some additional adjustments are needed to make the results of the two studies comparable. It is interesting that, after these adjustments have been made, the consistency between the two studies appears still greater than one would judge from Ezekiel's preliminary comparison.

To illustrate: The data as reported in Wisconsin Research Bulletin 79, page 24, will serve as a starting point. By making the adjustments shown below these data can be made directly comparable to the preliminary results of our present input-output research. The basic data are presented (table 8, page 24, of the Wisconsin bulletin) as follows:

Total digestible nutrients fed in addition to pasture	Milk produced
Pounds	*Pounds*
3000	5900
3500	6720
4000	7410
4500	7950
5000	8450
5500	8880
6000	9200

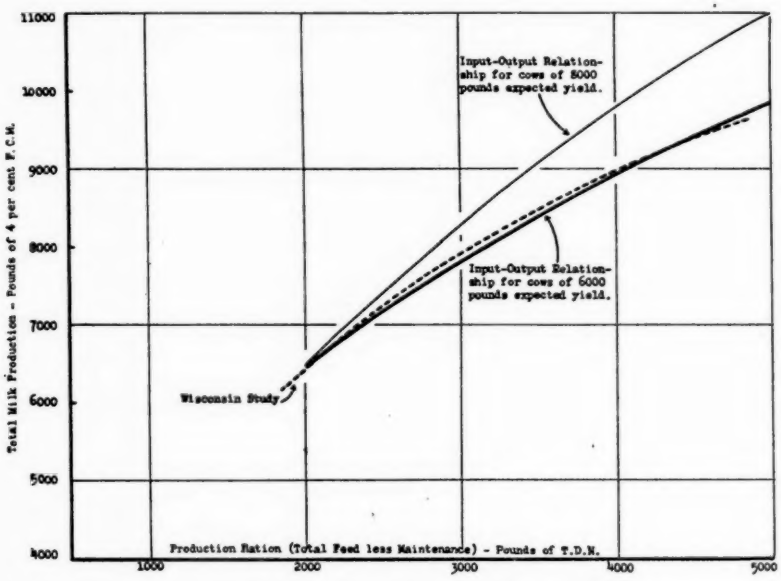
1. Our present input-output study measures output in terms of 4 per cent milk, while in the earlier Wisconsin study, the average fat content of the milk was 3.54 per cent. In order to convert the Wisconsin milk outputs to a 4 per cent basis, we have used the factor .921 derived in the Wisconsin study.

2. In our present input-output study all the cows were fed rations with a protein content sufficient to insure that no protein deficiency occurred. The nutritive ratio was 1:7.0 or less. Since the

[1] These preliminary results have been presented by Einar Jensen in an article, Determining input-output relationships in milk production, in THIS JOURNAL, 22(1): February 1940.

[2] M. J. B. Ezekiel, P. E. McNall, and F. B. Morrison, Practices responsible for variations in physical requirements and economic costs of milk production on Wisconsin dairy farms, Wis. Res. Bul. 79, 1927.

rations fed the Wisconsin cows on an average had a lower protein content, corresponding to a wider nutritive ratio, namely, 1:8.5, the Wisconsin output figures have been adjusted to the 1:7.0 basis by using the adjusting factor 1.136 (i.e. $\frac{111.7}{98.3}$). This factor was derived in the Wisconsin study, and expresses the average increase in milk production found to be associated with the higher protein content of the ration.



COMPARISON OF THE RESULTS OF THE WISCONSIN STUDY WITH OUR PRELIMINARY INPUT-OUTPUT RESULTS

3. The Wisconsin study measured feed inputs in number of pounds of T. D. N. consumed in addition to pasture, while those cows which were used in our experiments received no pasture. Therefore, in order to compare total annual feed consumption, it is necessary to estimate the nutrients obtained from pasture by the Wisconsin herds.

These herds were reported to be on pasture from May to October, inclusive, that is, six months of the year. Of the total nutrients fed in addition to pasture, 4,065 pounds of T. D. N., they are reported

to have received on the average 25 per cent during the six months pasture season (*ibid*, p. 22). If they received 25 per cent during the summer season, they must have received 75 per cent during the winter feeding season. If we can assume that the cows received as many total nutrients in the summer season as in the barn feeding season, then, since we know how much their feed consumption amounted to during the winter feeding season, we can compute what the total annual feed consumption was and also the part of the total which they have received from pasture. It will easily be seen that this part amounts to $33\frac{1}{3}$ per cent of the total annual consumption of feed, or 2,032 pounds of T. D. N.

We can get a rough check on this estimate by comparing it with the estimates furnished by the Agricultural Marketing Service obtained in the 1932–34 pasture seasons. Their estimate was that Wisconsin dairy cows received 36 per cent of their total nutrients from pasture, while our estimate, derived in a different way, gave us the figure $33\frac{1}{3}$ per cent.

4. Furthermore, because the Wisconsin study relates total rations to milk output, while in our present input-output study milk output is related to the "production ration," that is, total ration minus maintenance, we also have to estimate maintenance requirements for the Wisconsin cows in order to arrive at the Wisconsin production rations.

Since maintenance requirements computed according to the Haecker standard used in our study vary with the live weight of the cows, we must estimate the average live weight of the Wisconsin cows. Our best guess is that these Wisconsin cows on an average weighed about 1,100 pounds. This is based on the assumption that they were predominantly Holsteins with a minor proportion of cows of the smaller breeds. This would mean that the maintenance requirements equaled about 3,182 pounds of T. D. N. An error of 100 pounds in our live weight estimate would correspond to a difference of 289 pounds of T. D. N. in our maintenance ration.

When we combine all these different adjustments in order to arrive at their total effect, we find that we must increase the Wisconsin milk output figures by 4.6 per cent and simultaneously reduce the feed input figures by 1,150 pounds of nutrients.

This gives us a revised table of inputs as related to outputs as follows:

Total digestible nutrients fed in addition to maintenance	Production—pounds of milk with 4% fat, nutritive ratio 1:7.0
1850	6171
2350	7029
2850	7751
3350	8316
3850	8839
4350	9288
4850	9644

Finally before proceeding to a direct comparison of the results of the two studies, we must take into account one additional point. The average production of the Wisconsin herds was fairly close to the equivalent of 6,000 pounds of 4 per cent milk, while the average input-output curve presented in the preliminary research of our present input-output study applies to cows which normally would produce 8,000 pounds of 4 per cent milk. Therefore we have recalculated our input-output curve as it would apply to cows of an expected yield of only 6,000 pounds of 4 per cent milk. Only when this is done have we completed our efforts to adjust the data to the same basis.

After thus having made the data comparable we may now plot on the same chart two input-output curves resulting from the two different studies. A glance at the chart will show that the results come out surprisingly close. As a matter of fact, the differences are well within the margin of error.

However, we should not attach too much importance to this remarkable consistency because of the very rough nature of some of the adjustments made above. Moreover, the data presented from our present study are merely preliminary results. The data available for Ezekiel's Wisconsin study were probably among the best that have been used in any multiple correlation study of the problem. Preliminary comparison with other statistical correlation studies using farm records do not show as close agreement.

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ROLE OF SOIL DEPLETION IN LAND VALUATION

WE READ with considerable interest Donald B. Ibach's article in the May, 1940, issue of the JOURNAL on The Role of Soil Depletion in Land Valuation. Thought on the subject of valuation of land under conditions of declining productivity is long overdue. As Ibach and others point out, the formula $V=a/r+i/r^2$ will give the present value of land for an infinite series of increments in rent, but, as is well known, this formula has an absurd solution under conditions of declining return to land. The article developed a formula to take care of the situation faced by many parts of the country where soil depleting crops must continue to take their toll of fertility and where that toll is at least partially predictable. In developing the idea and the formula, however, we believe that Ibach would have made a greater contribution through (a) indicating how his law of diminishing rents works, and (b) presenting a summary formula instead of an unsummed series. We were able to discover his law of diminishing rents only by the empirical method of cut and try. The law is pointed out below.

This problem presented by Ibach has a simple mathematical solution, as will be shown, and hence there was no need for the author to add laboriously all thirty-one terms of the series which he wrote on page 468. His series grows more complex and cumbersome as each term is added. Should the series contain 100 or 200 terms, as well might be the case where depletion is less rapid than in his Putnam Silt Loam illustration, the work would become heavy to say the least.

We offer a more general treatment than that given by Ibach in that the decline in land rent need not reach zero but may have a transfer rent to some other use which arrests the decline in annual rent. An illustration of importance in the Great Plains is the case of wheat land where grazing as an alternative use sets a lower limit to the decline in the annual rent of the land when it has been used for cropping. Even with an alternative rent of zero, our formula still retains its validity.

The problem might better have been stated in the original article as follows: What is the value, V, to be paid now for an acre of land, assuming that its present fertility is F_1, and that its fertility is diminishing at a constant rate d (not to be confused with Ibach's d_1,

$d_2, d_3, \ldots$, since the latter are decrements), and that it will reach a lower point of fertility F_2 at which its annual rent thereafter will be p? p will be zero where no transfer rent exists. Rent earning ability of the land is assumed to be directly proportional to the number of units of fertility in excess of F_2 and interest is $r\%$ compounded annually. The annual rent earned is assumed to be paid at the beginning of each year.[1] First, the rent earning ability of the acre of land for the Kth year is

$$\frac{F_1(1-d)^K - F_2}{F_1 - F_2}(a)$$

where a is the rent of the land for the first year. This is the law of declining rent, which Mr. Ibach failed to state explicitly in his article.[2] Second, the value, V, is given from the following series where n is the number of years[3] required for the fertility to drop from F_1 to F_2

$$\begin{aligned} V = a &+ a\left[\frac{F_1(1-d) - F_2}{F_1 - F_2}\right]\left(\frac{1}{1+r}\right) \\ &+ a\left[\frac{F_1(1-d)^2 - F_2}{F_1 - F_2}\right]\left(\frac{1}{1+r}\right)^2 \\ &+ a\left[\frac{F_1(1-d)^3 - F_2}{F_1 - F_2}\right]\left(\frac{1}{1+r}\right)^3 + \cdots \\ &+ a\left[\frac{F_1(1-d)^{n-1}}{F_1 - F_2}\right]\left(\frac{1}{1+r}\right)^{n-1} \\ &+ \frac{p}{r}\left(\frac{1}{1+r}\right)^n. \end{aligned}$$

But this can be written as a summary formula,

$$V = a\left\{1 + \frac{F_1}{F_1 - F_2}\left[\frac{1-d}{r+d}\left\{1 - \left(\frac{1-d}{1+r}\right)^{n-1}\right\}\right] - \frac{F_2}{F_1 - F_2}(a_{\overline{n-1}|r})\right\} + \frac{p}{r}\left(\frac{1}{1+r}\right)^n \qquad (1)$$

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[1] Slight adjustments would be necessary for payments at the middle or end of the year, but would make no essential change in the problem.

[2] From Ibach's figures: $a = \$2.95$, $d = .03$, $F_1 = 2{,}500$, $F_2 = 1{,}000$, and $K = 0, 1, 2, 3, \cdots, 31$, the data may be obtained which, when graphed, give the author's figure 3, page 466.

[3] n can be found by solving the equation:

$$F_1(1-d)^n = F_2, \text{ which gives } \quad n = \frac{\log F_2 - \log F_1}{\log (1-d)}.$$

where $a_{\overline{K}|r}$ is the mathematical symbol for the present value of an ordinary annuity of \$1 for K periods at interest rate of r. This formula will give the same result as Ibach's unsummed series with a saving in time and with less possibility of error. When the above formula is applied to the problem used as an illustration by Mr. Ibach, the following result is obtained:

$$V = \$2.95\left\{1+\frac{2500}{1500}\left[\frac{1-.03}{.05+.03}\left\{1-\left(\frac{1-.03}{1+.05}\right)^{30}\right\}\right] - \frac{1000}{1500}\left(a_{\overline{30}|.05}\right)\right\} + \$0$$

$$= \$2.95\left\{1+\frac{5}{3}\left[\frac{.97}{.08}\left\{1-\left(\frac{.97}{1.05}\right)^{30}\right\}\right]-\frac{2}{3}\left(15.37245\right)\right\}$$

$$= \$26.8008.^{4}$$

Formula (1) can be applied only to a limited number of cases since it presages among other things, the knowledge of the rate of decline in the physical productivity of the land, such as in Ibach's Putnam Silt Loam example. However, prospective farm investors and appraisers would find useful a simple formula, parallel to

$$V = \frac{a}{r} + \frac{i}{r^2} \qquad (2)^{5}$$

which is more generally applicable. A formula is needed which can be applied in those cases where the change in dollar rent can be estimated, *whatever the cause*, and where this change is downward.

We suggest the formula[6]

$$V = \frac{a}{r} + \frac{i}{r^2}\left[1 - \frac{1}{(1+r)^{n-1}}\right] \qquad (3)$$

which is an extension of formula (2) where i can be *either* positive or

[4] Mr. Ibach obtained V=\$26.7780. The slight discrepancy between the two results could be due to small cumulative errors in his additive process. On the other hand, the error might be ours. In any event, the answers should check, allowing for the rounding off of decimals.

[5] Note that the first year rent payment a, is considered as being made at the end of the year instead of at the beginning as in formula (1).

[6] Rent payment at the end of the year. Formula (3), in essentially the same form has been used before for determining capital values where annual returns are increasing for a finite number of years. See Karl Scholz, The determination of reasonable prices of speculative investments. The Annalist, p. 6, Jan. 3, 1930. We are unaware of its use in the literature for cases of declining annual returns.

negative and n is the number of years during which constant increments or decrements occur. In the decreasing rent case, n means the number of years during which constant annual decreases occur, whether that rent levels out at a positive figure due to transfer of use or some other reason, or to a level below zero at which time the land will have been abandoned.

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RECEIVED JUNE 25, 1940

RELATIVE IMPORTANCE OF CHANGES IN DEMAND AND QUANTITY ON PRODUCER REVENUES

THE PURPOSE of this note is to indicate the relative importance on the gross revenues received by producers of a change in consumer demand (when the quantity of goods remains fixed) as compared with a change in quantities (when the consumer demand curve remains fixed). A given percentage change in demand has been considered here to be the percentage change in price paid by consumers for a given quantity.[1] Given percentage changes in producer demand then produce identical changes in producer revenues regardless of the elasticity of demand. The situation in the case of changes in quantity differs. No variation in quantity will change revenues if the producer's elasticity of demand is one. Increases in quantity will increase revenues if the elasticity is greater than one but revenues increase in a smaller ratio than supplies except when the elasticity becomes infinite. Decreases in quantity increase revenues when the producer's demand is inelastic and the increase in revenue approaches infinity as the elasticity approaches zero. The analysis has been restricted to certain cases in which the consumer demand has a constant elasticity throughout the curve, but this is sufficient to outline the general nature of the problem. For convenience of exposition the results are stated only for increases in producer revenue; the figures differ slightly when decreases are considered.

The cases where no marketing margins exist are examined first. Under these circumstances variations in consumer expenditure will

[1] Convenience in the analysis suggests this definition rather than the form recommended in a note: On the term 'Change in Demand,' in THIS JOURNAL, October, 1930.

be completely reflected in producer revenues. The formula showing the quantity changes required to produce given value changes is as follows:

$$\log \frac{(Q_1)}{(Q_0)} = \frac{E}{E-1} \log \frac{(V_1)}{(V_0)}$$

where Q_1 is the required quantity, Q_0 the base quantity, E the elasticity, V_1 the new value and V_0 the base value. Examination shows that at all elasticities of demand above .52 a ten per cent increase in demand will produce a greater increase in producer's income than a ten per cent change in quantity. If E is less than .52 a ten per cent decrease in quantity will produce a greater increase in producer income than a ten per cent increase in demand. When changes in demand are greater than ten per cent the elasticity at which a similar change in quantity will bring about the same result to producers, increases slightly. For example, a 50 per cent change in demand will be equivalent in its influence on producer revenues to a 50 per cent decrease in quantity at an elasticity of about .63. If E is more than .70 but less than 2.10 then a ten per cent increase in demand increases producers' revenue more than twice as much as a ten per cent change in quantity, and if more than .79 but less than 1.57 by more than three times as much. The range of elasticities over which given percentage changes in demand exceed to an important extent the influence of similar changes in quantity is thus large, and significant in view of the supposed elasticities of the principal agricultural products.

If there is a marketing margin the situation is changed in two important respects. Assuming the increase in expenditure by consumers to be passed on to producers completely, that is that the marketing margin remains the same after as it was before the demand change, then the relative demand change in the producer's market is intensified. Thus, if the marketing margin is 50 per cent of the consumer's price a ten per cent increase in demand in the consumer's market will result in a 20 per cent increase in demand in the producer's market. The existence of a marketing margin may also result in a different elasticity of demand in the producer's market than that in the consumer's market.

When the margin is a constant percentage of the consumer's price, the elasticity of demand in the producer's market, however, remains the same as that in the consumer's market. If the margin

is taken as 50 per cent of the consumer's price we now find that at all elasticities above .37 a ten per cent increase in consumer demand will result in a greater change in producer revenue than a ten per cent decrease in quantity. If the elasticity is more than .55 then ten per cent increases in consumer demand result in more than twice the increase in producer's income as that which results from a ten per cent change in quantity. Similarly between elasticities of .66 and 3.28 a ten per cent change in consumer demand is more than three times as important as a similar percentage change in producers' supplies. The elasticities for constant percentage margins of less than 50 per cent, of course, lie between these elasticities and those where no margin exists.

A constant absolute marketing margin results in a less elastic producer's demand curve than the consumer's curve and one with a changing elasticity. If the margin amounts to half of the consumer price forming the base from which the changes are computed, then a ten per cent increase in demand results in larger changes in income than ten per cent changes in quantity at all elasticities above .70. If the margin is 25 per cent of the base price the corresponding elasticity is about .6. Ten per cent increases in demand will produce greater changes than 20 per cent variations in quantity for elasticities above 1.0 and below about 125.0 with constant margins of 50 per cent of the base price, and between .82 and 4.3 when the margin is 25 per cent. Ten per cent increases in demand will produce greater changes than 30 per cent changes in quantity for elasticities above 1.16 and below 6.7 with constant margins of 50 per cent of the base price and for elasticities between .93 and 2.6 when the margin is 25 per cent.

The analysis indicates that demand increases are likely to be more important than quantity changes of the same magnitude in all cases except where there is an elasticity of demand in the consumer's market lower than that probable for a majority of agricultural commodities. In the cases examined the elasticities below which quantity changes were of greater importance ranged from .37 to .70. Increases in demand were even more than twice as important as similar changes in quantity over important ranges of elasticity, although with constant absolute margins which amounted to 50 per cent of the base price the lowest elasticity for which this was true was 1.0. Moreover, the lower range of the elasticities above which demand increases are three times as effective as quan-

tity changes on producers' incomes were only slightly above those for double importance.

This analysis, since it deals only with changes in gross revenues, involves no considerations of cost, or net revenues. The conclusions are the same when applied to net revenues when total costs remain unchanged as output is varied. These conditions are probably approximated in agriculture when short periods of time are considered. If a reduction in quantity reduces total costs the conclusions are modified. The reduction in cost associated with the decreased production tends to raise the elasticities at which quantity changes are of equal importance to demand changes in their effect on net revenues. For example, when there is no marketing margin and if a ten per cent reduction in quantity reduces total costs by five per cent, then at elasticities of .68 or less, quantity changes will be of greater importance than similar changes in demand in their effect on the absolute net revenue. This corresponds to the elasticity of .52 found when only gross revenues are considered. These examples disclose an influence on producers' revenues resulting from changes in demand which has important implications in appraising agricultural problems.

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RECEIVED SEPTEMBER 25, 1940

PUBLICATIONS RECEIVED

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REVIEWS

Land Economics, Richard T. Ely and George S. Wehrwein. New York, The Macmillan Company, 1940. Pp. 512. $4.00.

In this new revision of their text these veteran students of land problems have presented an interesting, informative and very readable book. While its purpose is not specifically discussed, its orientation seems clearly to be that of a textbook for undergraduate students, an introductory approach to the subject. As such it should be judged rather than in terms of its contribution to advanced and technical thinking on the subject. The material presented should undoubtedly stimulate an interest in land problems on the part of beginning students, and enough leads are opened up to provide the instructor with a very usable series of topics for fuller discussion. One can scarcely escape a feeling, however, that the instructional possibilities of the book could have been increased by sharper focussing of many of the economic concepts and by a more analytical treatment.

It is easy to expect too much in a textbook on land economics. The field is a difficult one to define and its ramifications are extremely far reaching. Few students agree as to just what should be included or excluded. Dr. Ely and Dr. Wehrwein have almost certainly given us the best textbook available up to this time. It is undoubtedly stronger, however, in its historical, descriptive, and institutional phases than in the more sharply defined analytical aspects. Since opinions do differ so widely with respect to appropriate and adequate coverage, appraisal must inevitably be highly individual.

The still controversial question of what comprises land economics remains more or less inconclusively dealt with. The authors attempt a new definition of the field with more emphasis on space relationships than in their previous texts. Land economics, they say, "may be defined as the science which deals with the utilization of the earth's surface, or space, as conditioned by property and other institutions and which includes the use of natural forces and productive powers above or below that space over which the owner has property rights."[1]

In their mimeographed text of 1928 they say, "As science, land economics seeks the truth for its own sake. It aims to understand

[1] P. VI.

present facts in regard to land ownership in all their human relationships, to explain their development in the past, and to discover present tendencies of growth. As an art, it aims to frame constructive land policies for particular places and times."[2]

The emphasis, both in these definitions and in the book as a whole, is institutional. To some readers the small use of the classical approach to the analysis of relationships between land, labor, and capital and the seeming overemphasis on the institution of land ownership will be disappointing in a general text. Many good openings for a more penetrating treatment appear, and it would seem to this writer that expansion in these respects at the expense of description and historical review would have improved the book as a classroom text.

In this edition the subject of "Land and Population" has been shifted to the opening chapter and modified in some respects. It is a very useful summary for those who have not yet had much contact with Malthusian doctrines or population problems. One wonders here, however, whether the elements of the problem might not have been brought into sharper relief and the student given more to "chew" on.

The second chapter on "Land as Nature," is in the main a brief treatise on physical geography, possibly a necessary prelude to the discussion, but a section which might perhaps be reduced or more clearly related to the economic sections which follow. Occasional categorical statements leave one skeptical, as for instance, that on page 44 that "Rich soils mean greater income per man and per farm, higher land values, and a substantial tax base which can support schools, roads, and other community institutions. Marginal areas lack these advantages." But how about intermediate types? Should the intelligent farmer seek only the rich areas or do man's opportunities tend to be equalized over the various grades of land out to the margin? Can it be demonstrated that the Wyoming sheep or cattle man is less well off than the Iowa corn grower or the cotton planter or cropper on Mississippi delta lands?

In the third chapter on "Land as Space," the treatment becomes more definitely economic, and the handling of the subject seems more satisfying, at least to this reviewer. The following chapter on "Land as Property" is one in which the authors seem most at home,

[2] Ely, Richard T. and George S. Wehrwein. Land Economics. Ann Arbor, Michigan. Edwards Bros. 1928. (Mimeo.) p. 2.

and is one that contains a great deal of informative material. This is the realm in which the institutional approach is particularly effective. Considering, however, the vast adjustments that are occurring in the thinking about the relation of society to land this chapter slips too easily into the older emphasis on land as the property of individuals. One might have expected more discussion of the views of Henry George (which still have a lively following) and more particularly a larger emphasis on the significance of large-scale public ownership. Fuller discussion of actual and potential modifications in the right to handle land as the owner or tenant may choose would seem useful in stimulating the student to think more in terms of an evolutionary situation rather than a static one. The treatment of taxation in relation to the land seems especially inadequate and is occasion for some surprise in view of the extensive earlier writings in this field by the senior author.

Chapter V on "The Economics of Land Utilization" provides the most direct plunge into what most economists would regard as land economics. One may expect that students will burn more oil over this section than all of the remainder of the book, if they attain a real grasp of the subject matter touched upon. Perhaps this section could well have been expanded at the expense of some others. The discussion of the proportioning of factors of production is along orthodox lines, and not very fully developed. It has the merit of introducing certain elements of realism which are minimized in such treatments as those of J. D. Black, G. M. Peterson, and others. For example, there is a brief discussion of the influence of size of input units on proportionality, a point that is often ignored in more theoretical treatments which usually assume complete divisibility and infinitely small units of increment. This chapter also includes discussion of rent, land value, and certain brief tentative comments looking toward a discussion of comparative advantage. None of these is developed very fully, perhaps not as fully as might be desirable. A text on land economics might well give a chapter each to comparative advantage, land taxation, and rents.

The section on competition of land uses (pp. 133 and following) is suggestive and useful. It is based, however, rather directly upon Thünen's treatment rather than on the more developed and refined formulations of this theory by later German writers, particularly those of Theodor Brinkmann and Alfred Weber. The latter part

of this chapter gives a good discussion of the time element in land utilization costs, a phase in which the authors have in previous writings made significant contributions. It would probably have simplified the students' problem if the sections on land value (pp. 120 and following) had been combined with those on the same subject (pp. 150 and following).

Chapter VI on "Agricultural Land" contains a great deal of useful historical material and raises some problems of policy. It is interesting to note that on page 165 the authors appear to regard as defects of the family farm the features which many students of social problems point to as its chief advantages. This would be a suggestive topic for fuller discussion. Despite the emphasis on problems of zoning, resettlement, etc., there seems not to be any clear-cut discussion of the nature of marginality in land nor of the basic criteria of land classification. In Chapter VII, on "Farm Tenure and Conservation," there is more tacit acceptance of the agricultural ladder idea than will be satisfying to many of the present-day students of tenure problems. In the latter part of the chapter the official figures on the extent of soil erosion seem to be accepted somewhat too uncritically, and in such sections as that on page 220 it would have seemed worth while to discuss such questions as "What is the share (of the cost of conservation) which the public should bear?"

The section on "The Utilization of Arid Lands" seems to this reviewer one of the less adequate ones from the standpoint of economic analysis. This is understandable in view of the much more intimate experience the authors have had with land problems of the Middle West than with those of the Far West. To illustrate, one may take such comments as that on page 244 that "as soon as the ranchman has to depend upon supplemental feed, excessive costs begin to appear. In his efforts to cover these costs the ranchman has steadily increased his herds and overstocked the range." Or one on page 268, "Repayments have been so slow that the revolving fund has failed to revolve and a certain amount of subsidy has crept in; yet this can be justified if reclamation is put on the same plane as rivers and harbors and flood control." These, like the topic of water as a fourth factor of production, so lightly touched on page 256, provide opportunity for an intriguing discussion of these phases of land economics. No doubt it would be inappropriate to go into them extensively in a general text. They do,

however, open up lines of economic analysis that are as yet inadequately dealt with in any of the literature.

Space hardly permits adequate review of the latter part of the book which deals with "Forest Lands," "Recreation Lands," "Water Resources," "Mineral and Power Resources," and "Urbanization and Urban Land." These, like the one on arid lands, are largely historical and descriptive. They contain a wealth of interesting detail and comment collected by the authors throughout a lifetime of study of these subjects. Often the door is opened on an interesting analytical problem, but one finds it too often slammed shut before he gets much of a view of what is behind it.

There would seem to be a place for a supplementing, possibly a more advanced, text which would deal in a more critical way with current problems in this field. These authors have, however, assembled a great deal of interesting material which will prove useful to students of land economics.

M. R. BENEDICT

University of California

Productivity, Wages, and National Income, Spurgeon Bell. The Brookings Institution, Washington, D. C., 1940. Pp. xii+344. $3.00.

This study is the sixth in a series dealing with the general field of Distribution of Wealth and Income in Relation to Economic Progress published by The Brookings Institution. Bell's *Productivity, Wages, and National Income* is essentially a statistical presentation of relations between the variation of productive efficiency and the income of the wage earning population in the United States, and is not directly concerned with developing an explanation of the business cycle.

The study may be divided into three sections. The first discusses separately for the manufacturing, railroad, electric light and power, and mineral industries trends in wages; distribution of industrial income; capital investment, productivity, output, and employment; and how the gains from increasing productivity were divided. A second part of the study considers the same subjects in the automobile, iron and steel, paper and allied products, cotton textile, and tobacco industries. The third section comprises a group of appendices which consider in greater detail many of the problems referred to in the text, and discuss in some detail the methods used

in developing the data on which the analysis is based. The appendices also include all of the statistical series discussed and shown graphically in the text.

The author comes to certain general conclusions concerning changes which have taken place between 1923–24 and 1936–37. Some of the conclusions pertaining to four major groups of industry —manufacturing, railroads, mining, and electric light and power— which together in 1938 accounted for about 75 per cent of the total industrial income of the United States and furnished about 75 per cent of the total industrial employment, are stated as follows: The volume of production in general did not increase proportionately to the increase in productivity. The volume of employment in the industries covered showed a material decline. The restriction of employment is related to the failure of output to increase in proportion to productivity. The gains to labor proved to be chiefly in the form of leisure. The long-run interests of the entire laboring population depend upon the maintenance and expansion of aggregate production and aggregate employment. For the economic system as a whole, the most desirable method of passing on the benefits of increasing productivity is through the medium of price reductions.

Agriculture as an industry is given very little attention, but it is of interest to note that the author finds that from 1880 to 1939 self-employed farmers declined from 28 to 12 per cent of the total working population. Wage earners on farms, the distribution of farm income, farm output and employment are not considered separately. But the analysis indicates that the rising importance of industrial wage earners, both in relation to the gainfully employed and to wage earners as a group, evidences the development of an economic system in which agriculture has become a less important source of employment than processing and other secondary industries.[1]

The study does not follow an econometric approach, and is not of the same nature as some recent investigations on capital, income, wages, and prices such as the work of Keynes, Hawtrey, Hicks or Lindahl. Bell largely confines himself to measuring the trends of interrelated economic elements which he precisely defines (except

[1] In connection with this point see: J. S. Davis, "Agricultural Fundamentalism," in On Agricultural Policy, 1926–1938 (Stanford University, California, 1939) pp. 24–43.

the terms efficiency and productive efficiency which the author fails to define in precise terms), and he does not labor to develop a theoretical framework which explains the functional relations between capital, income and its distribution, wages and their distribution. Since a large portion of the volume verbally repeats what is evident from study of the tables and charts, much of the text is taken up with descriptions of the behavior of statistical series. A major feature of the study is its lucid presentation of many carefully compiled and some ingeniously derived statistical series; a weakness of the study is its failure to explain more satisfactorily why the series such as income, wages, and output behave as they do.

The reviewer believes that the study serves admirably as a source book for data on important segments of our economy. In this connection it may be highly useful in providing information for theoretical and econometric studies to supplement other investigations necessary in answering questions on not only *how* but also *why* the rates of economic expansion and progress vary.

SIDNEY HOOS

University of California

Why Farmers Are Poor, Anna Rochester. New York, International Publishers, 1940. Pp. 317. $2.75.

An attempt to picture the agricultural crisis in the United States and to analyze its effect and causes in a readable popular book of about 300 pages is a very ambitious undertaking indeed. It becomes particularly difficult if one recognizes—as Miss Rochester fortunately does—that a serious understanding of the problems presented by such an endeavor can not possibly be achieved except on the basis of a thorough investigation of the fundamental trends which determine the dynamics of our economic system. The author believes, however, that she is able to overcome these difficulties by employing the tools and methods elaborated by Karl Marx and his followers and by adjusting them to her study of the American agriculture.[1] Miss Rochester regards agriculture not as an isolated field of research, but "as a part of the capitalist economy." As such it is in her opinion subject to all contradictions, disproportions and difficulties observed in the economic life of modern industrial countries. Technical progress leading to the growth of the

[1] For a very good modern account of Marxian economics see M. Dobb, Political Economy and Capitalism; London, Routledge, 1937.

large-scale enterprise, to monopolies and to concentration of economic power enters the field of agriculture and creates there exactly the same tendencies of concentration and mechanization. The introduction of tractors and combines which leads to a technical revolution in agricultural production is responsible for the "destitution in midst of spectacular wealth." The machine which displaces the industrial worker, ruins at the same time the individual farmer, creates on the one hand a land proletariat which is deprived of all means of subsistence, and on the other hand conditions which bring the individual farmer to the edge of bankruptcy.

The vivid story of the resulting class struggle on the land, the colorful account of the endless chain of odds opposing the small farmer fighting for a meagre livelihood, the penetrating picture of the exploitation of wage workers, sharecroppers and small tenants by the combined forces of banking, monopolized processors and powerful landlords form a dry, prosaic appendix to John Steinbeck's unforgettable tale.

The chapters devoted to the description of these developments are based on a wealth of well organized statistical material and on a lot of factual information. They succeed brilliantly in fulfilling their purpose that is in driving home to the man on the street, to the economist preoccupied with pure theory and to the politician engaged in economic considerations the unbearable misery oppressing great parts of the land population in this country.

The pages containing the theoretical considerations, may find, however, less general approval. Miss Rochester oversimplifies the problems of the capitalist development in agriculture and in her attempt to press all recent changes in this sphere into terms of Marxian economics (which she envisions in a rather primitive way), she neglects crucial differences existing between the world of industry and the world of agriculture. The tendency towards large scale enterprise, strong as it may be in industry, is by no means as simply established for agriculture as Miss Rochester seems to believe. The experience of many European countries, and partly even of this country, shows certain forces working in the opposite direction. They may counterbalance to a large extent or even cancel out the trends of concentration and centralization. The law of diminishing returns invalid as it may appear in times of rapid technological changes still keeps the progress of agriculture in very much narrower limits as compared with industry. Tradition, political resist-

ance, and economic adaptability preserve, even under conditions of high technical development, the type of the small producer. The chapter on rent where most of the theoretical mistakes of Miss Rochester originate is open to severe criticisms. The concept of absolute rent tied up with the labor theory of value can hardly be regarded as correct. It would need thorough revision and penetrating discussion to be able to serve as a basis for further theoretical work.

It seems to this reviewer that Miss Rochester paid much less attention to the elaboration of her theoretical technique than to her empirical research. The result accordingly is a good book, showing that farmers are poor but failing to demonstrate convincingly the causes of this poverty.

PAUL A. BARAN

Harvard University

World Wheat Planning and Economic Planning in General, Paul de Hevesy. London, Oxford University Press, 1939. Pp. xiv+907. $12.00.

The author indicates that "it has taken five years to write this book." This is not difficult to believe when one notes its encyclopedic nature. The volume is divided into three parts, followed by a long series of appendices. Part I includes three chapters setting forth the problem and six chapters outlining and discussing a plan proposed by the author. Part II consists of five chapters discussing "Economic, Political and Social Problems Raised." Part III considers, country by country, policies with respect to wheat and includes statistical tables for each nation. Fifty-six appendices present much additional statistical and other information relating to wheat.

The preface states that "our aim in writing this volume has been to furnish statesmen, economists and the general public with a brief exposé of the world's wheat problem, and to lay before them a proposal for its solution." The latter evidently is the major purpose, the former supplying background and support for the proposal. This conclusion is supported by many instances where discussions of specific problems are accompanied by the suggestion that the plan proposed would provide the remedy or alleviate the situation.

The proposal contemplates a new international agreement relating to wheat. As summarized by the author (p. 78) its main features are:

"(a) Allotment of export quotas for import into European countries only;

"(b) The obligation for all quantities exported to, and imported by, a European country to be covered by Certificates (issued by the International Wheat Board, to be established);

"(c) The export quotas to be expressed not in quantities but in percentages of the total European demand;

"(d) The aggregate of the export quotas always to be kept equal to the total European demand;

"(e) The Certificates to be negotiable;

"(f) Entirely free export to extra-European countries."

Dependence for results is placed in the allocation of exports to Europe. It is emphasized that the plan does not provide for the fixing of prices, control of production, or limitation of exports to non-European countries.

While Hevesy's plan itself does not include production control it is clear that he contemplates that adjustments will be made, particularly by exporting countries. It is observed (p. 129) "that an exporting country, having accepted the obligation not to consign to European countries more than a certain quantity, must, when framing its internal wheat policy, face this new situation and its probable consequences." The need for curtailment is implied in the statement (p. 133) that wheat acreage in "exporting countries was, in 1938, too large by 8.1%." In a chapter devoted to acreage adjustment it is suggested that each exporting country determine its "logical crop" on the basis of markets available to it and the "logical area" required for its production. Stress is laid upon the desirability of building up "security stocks" in each country as "insurance against bad harvests, errors in planning, or shortage in war-time."

The war has destroyed any prospects of adoption of such a plan at this time. Its acceptability to countries generally even though war had not occurred is doubtful. It is also questionable whether the plan would have been as effective as the author believes in providing a solution to the wheat problem. Assurance is lacking that exporting nations generally would have stood ready to take their chances with the proposed allocation of import quotas for European countries. It probably would have been suggested by some of the exporting countries that outlets in Europe have been reduced by policies which frequently involve uneconomic production and that therefore exporting countries should not have to

make all of the adjustment. It may be granted that importing countries would be reluctant to concede this. That, however, does not eliminate the probability of a strong, contrary feeling in exporting countries.

In earlier writings Mr. Hevesy supported the fixing of a minimum price on wheat. He has changed his views on this and marshals arguments to show the difficulties involved. He concludes that the controls on shipments to Europe embodied in his plan would lead to an "equilibrium price." This result, however, would apply directly only to Europe because the adjustment of supply to demand provided by the plan relates only to importing countries of Europe. As pointed out by the author himself "there will be a distinction between the European and the extra-European price." He also notes that "total European requirements of foreign wheat amount to no more than about 8% of the total wheat production." While the plan does not include production curtailment, it is apparent that were it adopted the effects on price in exporting countries would depend in a large measure upon their ability to adjust production within their borders. Whether such a plan would restore satisfactory wheat prices generally would not depend upon the plan itself as much as on the influence it might exert upon exporting countries in curbing their production. How to bring about such curtailment, however, remains a knotty problem.

The size of the book could have been reduced and, in the opinion of the reviewer, its effectiveness enhanced, if the author had elected to limit his discussion to material relating directly to his proposal. A considerable share of Part II has only remote bearing on his main thesis. One fairly long chapter on the competitive system, while interesting in itself and revealing the author's belief in competition, does not seem to add materially to the exposition of his plan. A chapter headed, "To Plan or Not To Plan" gives considerable space to criticism of the sort of planning represented by the U.S.S.R. A chapter on "The Future of Agriculture" is a hit and miss dealing with promises of developments which may occur in agricultural science. While the author apparently is optimistic over the prospects for industrial uses of farm products in general, he realistically recognizes that for his specialty, wheat, "It would be unwise, however, to rely on such a solution of the problem."

The universality of governmental concern with the wheat problem is suggested by the author's observation that he has been unable to

find any country "in which the government does not interfere with wheat." Part III reviews the place of wheat in the economy of individual countries and their plans for dealing with the problem. It serves as an excellent encyclopedia of wheat plans.

The large number of citations indicates the author's wide acquaintance with the literature on the subject and the extensive study he has given to it. It is too much to expect that any single individual should be able to get a picture correct as to detail for all countries with such wide variations in conditions. Thus, it is hardly an adequate description of the Federal Farm Board and the Canadian wheat pools to say that they "bought up . . . huge quantities of wheat to be held for a rise in price." The picture of conditions in the United States in the early thirties is overdrawn when it is said that "The mortgage investments of banks and insurance companies became practically worthless" and that "Panic was widespread and everyone who could hastened to send his money out of the country. . . . " Many will regard as an overstatement of accomplishment and credit due, the suggestion that it is to the administration that "the American farmer owed his restoration to comparative prosperity."

Other points could be mentioned in criticism but these should not be permitted to cover the suggestion that this is a book which should be available for the use of all serious students of the wheat problem or of agricultural policy in general. The elasticity of demand for it, however, probably is such that at the list price it will not be added to the private libraries of workers generally but it should be on the shelves of agricultural and other reference libraries.

O. B. JESNESS

University of Minnesota

The Control of Competition in Canada, Lloyd G. Reynolds. Harvard University Press, Cambridge, Mass., 1940. Pp. xiv+324. $3.50.

The detailed empirical studies of imperfect competition in different industries are usually numerous, widely scattered, and of very uneven merit, and these characteristics make it very difficult to form a complete and balanced picture of an entire economy. Professor Reynolds has surmounted these difficulties with unusual success. He provides us with a general survey of the role of competition and monopoly in Canada, and in addition he has summarized the legislative and administrative policies with respect to the

preservation and (more commonly) the prevention of competition. Both tasks have been excellently fulfilled, and his succinct but comprehensive study will be of real interest to students of both the Canadian and American economies.

The subject matter of the volume falls into four parts. The first two chapters contain descriptions of the market organizations in manufacturing, extractive industries, and trade, and estimates of the extent and nature of rivalry in various industries. The next three chapters are devoted to discussions (copiously illustrated from Canadian experience) of the wastes of monopoly and oligopoly with price agreement and the inefficiency of cartel arrangements in "competitive" fields (in particular, retail trade). Readers of this JOURNAL will be especially interested in the descriptions of monopoly in the processing of agricultural commodities. This first half of the book conveys a picture which is perhaps even more dismal to the believer in competition than that presented by our own economy. The governmental policies designed to preserve, to limit, and to eliminate competition are sketched in the following three chapters. Canadian policy has favored the latter two ends—hence the title of the book. Finally, Professor Reynolds outlines the legal and political framework of governmental policy and submits a general program for the improvement of the Canadian system.

This suggested program is to the reviewer the weakest section of the book, despite its general air of reasonableness. Most of the discussion and recommendations are extremely vague. The lack of data no doubt explains much of this vagueness, but the same lack does not prevent some dubious generalizations. We are told that many, and perhaps most, Canadian monopolies are permanent (pp. 57, 275—and desirable?, p. 79), and that trust-busting is futile (p. 63). Yet, as is almost always the case with such dicta, no proof of great economies of scale is presented for a single industry, and the discussion of motives for combination points in quite another direction (pp. 173–81). Other items of the suggested program, such as consumer information and tariff reform, are equally general and uninformative.

The author purposely eschews technical economic analysis, because "of a belief that the central problems of economics can be stated simply, and that unless they are so stated the subject will fall increasingly into disrepute" (p. xiv). The reviewer shares the first part of this view (but not necessarily the second—is mathe-

matical physics in disrepute?). Moreover, Professor Reynolds has been successful in saying many important things without explicit use of the formal apparatus of theoretical analysis. But is much really achieved by this? How many "general readers" will go through 300 pages of detailed descriptions and close reasoning? (Those who do so may be bothered by a few unexplained concepts, e.g., "elasticity of demand" and "additional [marginal] cost.") The professional economist, on the other hand, will be called upon to interpolate precise theoretical interpretations and to amend unduly simplified discussions (e.g., on joint costs, pp. 69–70, on general reductions of costs, pp. 75–78). But this is not a heavy task, and if the book succeeds in reaching the wide audience it deserves, the reviewer will experience what Professor A. G. Hart calls a "pleasant disappointment."

GEORGE J. STIGLER

University of Minnesota

Supply Responses in Milk Production in the Cabot-Marshfield Area of Vermont, R. H. Allen, Erling Hole, and R. L. Mighell. U. S. Dept. of Agri., Technical Bulletin No. 709, 1940. Pp. 60.

Although there is every evidence of careful workmanship in its preparation and an apparent reasonableness in its conclusions, the greatest value of this bulletin is in its methodology. It is primarily an experiment in application of the budgeting method to determination of a long-time supply schedule. As such, it is highly suggestive and exemplifies many of the advantages as well as weaknesses of the budgeting method.

The first half of the bulletin is taken up by a description of farm organization and its recent changes in the small area studied, while the remainder describes methods and conclusions of the study. The basic data consisted of data from 222 farms for 1936. Trends in internal farm organization and practices were determined by comparison with similar records obtained in the same area in 1926.

The method employed was essentially as follows: First, data for 1936 were "normalized" by adjustments in crop yields, livestock numbers and production, farm receipts and expenses. The effect was to convert the figures for each farm to amounts that might have been expected "had 1936 been a normal year climatically and had the business of each farmer been normal in every respect." Second, trends under way in 1936 were projected for a period of ten years

so that the budgetary comparisons to be made later would all be on the basis of virtual (though not absolute) completion of shifts now under way in farm practices or organization. These trends include estimates of the probability of abandonment of certain farms, of changes in labor supply caused by advancing age of farm operators, and so on. Third, three budgets were developed for each of 213 dairy farms, one for farm production and income in 1946 with milk prices unchanged from the 1936 level relative to other prices. A second budget was developed under an assumption of milk prices 15 per cent above their 1936 relative level, and a third with milk prices 15 per cent below 1936. Finally, the estimated amounts of milk production for the 213 farms under these three sets of budgets were used as a basis for anticipating supply responses to the indicated price changes, in other words, to determine 3 points on a supply curve.

What can be said about the validity of the method? The budgeting method provides us with a technique of presenting the combined results of a group of interrelated estimates, rather than an altogether scientific and objective procedure. The contents of a budget, consequently, are to be regarded more largely as judgments than as purely scientific determinations. Properly understood, this statement is by no means damning to the method. The internal organization of a farm is highly complex. Its rates of output are subject to an amazing number and variety of influences which are felt by the operator and by him are understood with varying degrees of error; then converted, often rather uncertainly, into modifications of organizational plans or practices. Even an interval of ten years, as assumed in this bulletin, does not guarantee full application of each advantageous technological discovery nor of full adjustment to each shift in relative prices.

To the scientific purist it may be pointed out that completely objective methods are not available for determining each shift in organization and in volume of production likely to result from given changes in prices. Objective techniques can be applied to only a small part of the influences operating in an actual economic situation. Consequently the research worker is thrown back on the use of techniques such as budgeting which are, admittedly, chiefly subjective. As long as this is understood, no harm is done. Indeed, judgments of trained and experienced observers may often provide a safer guide under these conditions than more objective analyses which apply to only part of the influences at work.

Of course, there is every reason to use the more precise methods to determine basic data for various parts of the budget whenever such methods are available. Indeed, one of the chief advantages of the method is that is permits consolidation of results from a variety of methods. It is apparent, however, that the results are only as good as the judgment of the research workers involved.

In the present instance, there are no uncertainties regarding competence of the authors and, in general, the conclusions appear reasonable and useful for their stated purposes. One or two minor weaknesses may be pointed out without detracting seriously from the merit of the work. The most serious question is with regard to the specific relationships between the assumed changes in prices and consequent changes in output of farm products. On page 43, under the assumption of a 15 per cent decline in price of milk relative to other products, it is said that, on the farm used as an illustration, "it would be considerably more profitable . . . to raise as many cows as possible than to milk the maximum number." But why raise 5 heifers each year (the number given) rather than 4 or 6? Why count on a production of 4,980 pounds of milk per cow under these conditions rather than 5,100 or 4,800? And in what way would the production have been different had price declined by 10 or 20 instead of 15 per cent, particularly if a 15 per cent decline involves raising "as many cows . . . as possible"?

A second question of this type appears on the same page. Under the assumption of a 15 per cent rise in milk prices, an application of 50 pounds of potash per acre is to be made to hay land in addition to other fertilizer applications previously described. But it is not apparent in what way this depends on price relationships. Where so many judgments are involved as in this bulletin, the reader would be grateful for information whether such shifts merely seemed reasonable to the authors, or whether they rested on some objective determination.

More fundamental questions are raised by the statement (p. 4) that by combining supply schedules obtained by the method described for various small areas a composite supply schedule may be obtained for larger regions. But would not the relationships between other prices, particularly of feeds, be disturbed by the 8 to 10 per cent shift in numbers of cows and 9 to 15 per cent change in milk production expected from the 15 per cent price change (p. 45)? More thought should be given to the precise nature of the

supply schedule obtained by this method and to the problem of interaction between production of milk and of other products.

JOHN A. HOPKINS

Iowa State College

Legal Aspects of Farm Tenancy in Illinois, H. W. Hannah and Joseph Ackerman. Illinois Agricultural Experiment Station Bul. 465, 1940. Pp. 239–273.

Agricultural economists have been studying the farm tenancy situation for many years, yet until recently little or no consideration had been given to the laws governing landlord and tenant relations. Recently, however, students have been studying the impact of law upon the relations between the two parties. This bulletin represents the third formal publication by an Experiment Station on the subject. It is concerned chiefly with a determination of present laws governing landlord and tenant relations, including constitutional and statutory provisions and court decisions, as well as rules governing the relations between the two parties under common law. It is also concerned with possible remedial measures to improve the legal structure where it does not meet current renting requirements.

Among the chief adjustments proposed are the following: (a) Change present laws for notice to terminate so that a written notice would be required at least 6 months before the expiration of the tenancy; (b) impose certain minimum statutory requirements on the tenant regarding good husbandry; (c) impose upon the landlord certain minimum requirements regarding repairs, maintenance of the property, minimum housing requirements, and undisturbed occupancy; (d) establish a county landlord-tenant commission for the purpose of making certain appraisals under the code and determining certain questions of fact as distinguished from questions of law; (e) provide for, in a somewhat abbreviated form, the much-discussed idea of *compensation for improvements;* (f) establish the principle of *compensation for disturbance;* and (g) require that no landlord or tenant can waive his rights under the code through contractual arrangements or otherwise.

This study does not show clearly either the economic and social impact of the present law or the adjustments in the position of the two parties which would likely result from the enactment of the proposed changes. In this respect, it is similar to the other two stud-

ies. Furthermore, it fails to give the reader any concept of alternative legal adjustments which may be used to attain desirable objectives.

MARSHALL HARRIS

Bureau of Agricultural Economics

The Variate Difference Method, Gerhard Tinter. Cowles Commission for Research in Economics, Bloomington, Indiana, Principia Press, 1940. Pp. xiii+175. $2.50.

Mathematical statisticians and practical research workers will react very differently to this volume. Mathematicians will be interested in its repeated tests of the conclusions from various points of view, and in the techniques suggested to test the reliability of the results secured. Research workers, on the contrary, will wonder if the study does not provide a very large and complicated cannon to shoot a very small and insignificant mouse.

The variate difference method has been known for a long time, and has been extensively studied by European theoreticians. It has never impressed the more empirical Americans, however, as having any particular value as a tool in practical research work.

In the variate difference method, successive differences are calculated from the successive items of a time series. This process is illustrated symbolically below:

Year	Original series	First differences	Second differences	Third differences	Fourth differences
1900	A	$A-B$	$A-2B+C$	$A-3B+3C-D$	$A-4B+6C-4D+E$
1901	B	$B-C$	$B-2C+D$	$B-3C+3D-E$	$B-4C+6D-4E+F$
1902	C	$C-D$	$C-2D+E$	$C-3D+3E-F$	$C-4D+6E-4F+G$
1903	D	$D-E$	$D-2E+F$	$D-3E+3F-G$	$D-4E+6F-4G+H$
1904	E	$E-F$	$E-2F+G$	$E-3F+3G-H$	
1905	F	$F-G$	$F-2G+H$		
1906	G	$G-H$			
1907	H				

It is clear from this statement that the successive "differences" become weighted totals of a number of successive items, extending into the future from the original item.

Where the items of the original series are successive points on a parabola, the differences vanish after the differences corresponding to the order of the parabola. From this fact it has been assumed that "differencing" would eliminate any underlying smooth curve, let-

ting the departures from that curve stand revealed. Tintner's book is almost wholly concerned with resolving the question, How far would the differencing have to be carried to remove all non-random elements from the original series? His tests show the point at which further differencing produces no further gain, and provide a means for measuring the proportion of the variance of the original item explained by the trend removed, and the proportion remaining unexplained as random. Further, he presents methods of calculating weighted moving averages, giving the mid-points of fitted curves for the parabolae shown, by the differencing tests, as suitable to best eliminate non-random items.

Except for this single application to guide the calculation of moving averages, he claims no direct research applications for his methods. The correlations shown between differences of various orders (in his pages 117 to 129) appear to yield highly unstable and conflicting results, of little research significance, while the correlation between the "mathematical expectations" seems of dubious economic significance.

The fundamental difficulty with this approach is in its mechanical separation of economic series into "secular trend, cyclical fluctuation, seasonal component, and a remainder." Economics is concerned with both the rationale and facts of *all* the relations between variables, not merely with arbitrarily separated components. The author's statement, "there seems to be no objection from the economic point of view to the distinction between these four components," has neither analysis nor citations to bulwark it. The reviewer, for reasons set forth long ago,[1] is more inclined to the view that such mechanical and stereotyped "analysis" of time series has relatively little usefulness in the field of economic research.

The problem of how to handle time series so as not to secure biased or erroneous conclusions remains a pressing one. It may be that some day methods applicable to every-day research can be developed along the lines explored by Tintner, which will provide a solution to this problem. As yet, however, that still remains to be done.

MORDECAI EZEKIEL

United States Department of Agriculture

[1] The assumptions implied in the multiple regression equation, Jour. Amer. Stat. Assn., 20: 405–408, Sept. 1925, and Factors related to lamb prices, Jour. Pol. Econ., 35(2): April 1927.

The Wholesale Fruit and Vegetable Markets of New York City, William C. Crow, W. T. Calhoun, and J. W. Park. U. S. Bureau of Agri. Econ. and Agri. Marketing Service, Washington, D. C., 1940. Pp. 123. $0.25.

A century ago farmers delivered their fruits and vegetables to a market located in what is now described as the west side of Lower Manhatten in New York City. Since that time the city has expanded in all directions and its population has increased nearly twenty-fold. Despite this growth, the Lower Manhatten Market continues to handle three-quarters of the city's fresh produce. The market area, centered primarily around Washington Street, has neither direct rail connections nor direct access to the piers where car floats deliver carloads of produce from the rail terminals in New Jersey. Streets are narrow and crowded, stores are old and not adapted to the handling of perishable and bulky products. Traffic congestion is extreme, and parking and unloading space is practically non-existent. Yet, through this market flows produce with an annual retail value of more than $200,000,000.

In their study of the New York City markets Mr. Crow and his associates have made an excellent description of the organization and operation of the present markets. They discuss the difficulties and inefficiencies involved and estimate the costs of wholesale distribution under the existing conditions. Finally, they consider the possibilities of reorganization and reconstruction and conclude that costs can be reduced by nearly 25 per cent, or $8,500,000 annually through the construction of a modern and adequate market along the East River in Long Island.

The reviewers found the discussion of the alternative locations for a central market of great interest. Three possible sites are considered: one in Lower Manhatten near the present market, one in New Jersey, and one in Long Island. For each of these the costs of the central market are balanced against the costs of moving produce from the central market to the retail outlets. This procedure rules out the Manhatten location on the basis of the high value of the land required for the market, while the New Jersey location is at a disadvantage because of the high costs of moving the produce to the retail stores. The proposed Long Island location coincides approximately with the centers of population and consumption, and so trucking costs are at a minimum. At the same time, and most

readers will agree that this is indeed a fortunate coincidence, the industrial development in that area has resulted in relatively low land values. The authors estimate that a suitable tract of land could be obtained for approximately $6,000,000 and that adequate facilities could be built for an additional $8,000,000. These facilities would permit the wholesale distribution of fruit and vegetables at an estimated average cost of $179 per car as compared with the present average of $235 per car.

The general approach to the problem of the optimum location for market facilities seems beyond reproach. There are several minor points in application, however, that may be questioned. One of these concerns the alternatives of centralized or decentralized organization. The authors recognize that the establishment of several markets instead of a single central market would result in a reduction in the costs of moving produce from market to the retail outlets, but conclude that these advantages are overshadowed at present by non-cost advantages of the central market. While the reviewers are inclined to agree with this conclusion, they feel that the cost differences should have been explored more thoroughly. Under the proposed organization, the costs of moving produce from the central market to retail outlets amount to one-third of the estimated total costs. Casual observation suggests that economies possible in this sector would be important.

In preparing the cost estimates, the authors provided for the amortization of the total investment over a twenty-five year period. This procedure seems reasonable as far as the investment in buildings and improvements is concerned, but without basis when applied to the investment in land. Since the land is not expected to depreciate greatly in value, the investment can be refinanced periodically and the costs will consist only of interest payments. This correction will not affect the conclusions of the report materially, since the cost estimates per carload of produce will be lowered only $7.00 for the Lower Manhatten location and $1.00 for the New Jersey and Long Island sites.

Differences in factor prices usually indicate that varying intensity of utilization would be economical. It is questionable, therefore, if an 85 acre tract is the optimum size for both the Long Island location where land is valued at $70,000 per acre and the Lower Manhatten site with land values of $560,000 per acre. Since, in the pres-

ent case, the optimum adjustment for the Manhatten location would necessarily have costs in excess of those for the low land value location in Long Island, this point probably has more theoretical than practical significance. In other applications, however, the problem of proportionality is often of great importance.

The present reviewers feel that the methodology employed as well as the concrete results of this study are of great value to marketing students. The study is an excellent illustration of the synthetic and the comparative approaches to marketing problems. The construction of an ideal system, based on all the available information with regard to costs and methods, provides a basis for appraising the adequacy and efficiency of present marketing arrangements. In many marketing situations this is the only feasible approach, since all corresponding situations in other markets contain the same inefficiencies, imperfections and monopolistic elements. The authors of this report obviously have addressed themselves to a problem of the first magnitude. The entire fruit and vegetable industry, market administrators, and consumers should find this report of great value. The cost estimates appear to be well founded; and they err, if at all, on the conservative side. In fact, the authors seem to have deliberately excluded some factors which would have strengthened their conclusions. The presence of a large terminal market in one of the most congested areas of New York, at the terminus of the elevated highway and near the entrance to the Holland Tunnel, imposes innumerable delays and additional costs on others who travel through this area as well as on those who are delivering fruits and vegetables. Similarly, dealers and retailers who are unexpectedly delayed at the market because of traffic congestion probably encounter losses in their business in addition to the extra truck costs and loss of time. It would be difficult to find a more economical use of either public or private funds than to follow the authors' suggestions. With intelligent management, the proposed central market would provide an unexcelled barometer of fruit and vegetable prices and a wealth of supply and demand information. At the same time, the reduction in truck costs, time losses, and spoilage would result in annual savings equal to sixty per cent of the original investment.

R. G. BRESSLER, JR.
D. O. HAMMERBERG

University of Connecticut

Milk Distribution as a Public Utility, W. P. Mortenson. Chicago, University of Chicago Press. Pp. xviii+221. $2.50.

While the author has not, in this book, brought forth any new ideas which will be of particular value to the student of the problems of milk distribution, he has in a comparitively brief presentation adequately directed attention to certain basic considerations. The subject matter is presented in a clear and concise manner and contains much of value to the business administrator in the field of milk distribution.

The first part of the presentation is an analysis of costs and profits in milk distribution as found to exist in the author's home state. The conclusion reached is that a unified system of milk distribution, under the conditions of this study, and efficiently operated "could bring about a reduction of milk distribution costs by amounts varying from, say 1½¢ to 2¢ or perhaps even 2¼¢ per quart of milk handled." It is further pointed out that while such a saving *could* be effected there is no guarantee that it *would* be under a public utility system of administration of distribution. The author as would be expected shows that reduced margins must result principally from reduced costs rather than reduced profits.

One of the concluding chapters is a brief but very interesting discussion of possible gains to various interested groups under a system of unified distribution. The general conclusion seems to be that the consumer's bargaining position would be improved. However, the author has very effectively pointed out that it is quite possible that producers may have more to gain in this direction than in the maintenance of high resale prices by bargaining with inefficient distributors. The author calls attention to the fact that producers' organizations are often so conscious of the inelastic demand for bottled milk that they are inclined to forget that in spite of this fact they may increase their total income by reducing resale prices without proportionate decreases in producers' prices.

While Dr. Mortenson appears to be thoroughly convinced that material savings are possible under a public utility system of milk distribution, he is not too sure that such would be the case in actual practice. The writer agrees with him, however, that the material presented in this and other studies seems to indicate that an experiment in this direction in a few high cost markets is entirely warranted.

Iowa State College J. M. COWDEN

Product Standards and Labeling for Consumers, Alice L. Edwards. New York, Ronald Press, 1940. Pp. 134. $2.50.

This book describes the "general procedures" employed by certain producer, consumer, federal, and other agencies in establishing standards. These procedures are compared with a list of factors deemed essential for wise standards, namely, fair representation of all interested groups, consideration of all pertinent data, checks to safeguard soundness of standards before adoption, willingness to begin on simpler items in standards, provision for an adequate educational program, and provisions for revising a standard when desired. The author apparently intended to encourage various organizations to participate in the standards program but the analysis appears somewhat sketchy for this purpose. The book is more likely to be used as a reference in courses on consumer buying problems. In such event inclusion of more examples would have made the book more interesting to students, and a concise chart of the various agencies and their relationships would have further clarified the analysis. The appendix contains valuable illustrative material. The bibliography, however, is quite brief and omits Jessie V. Coles' highly pertinent book on standardization of consumers' goods.

ALISON COMISH THORNE

Logan, Utah

Whale Oil: An Economic Analysis, Karl Brandt. Food Research Institute, Stanford University, California, 1940. Pp. xii+264. $3.00.

Whaling in recent years has become one of the world's major sources of fat supplies. In the book under review, Professor Brandt has presented a well-documented survey of the history of whaling and of our knowledge of whales, together with a partial analysis of the present economic status of whale oil. The book is concise, is well illustrated by charts and maps, and contains useful statistical data.

Modern whaling has been organized along somewhat different lines from those prevailing in earlier centuries. Great factory rendering ships, accompanied by fleets of steam-powered killer boats equipped with harpoon guns and other modern devices, now hunt the large and fast blue and fin whales, as well as humpback, sperm, and sei whales, chiefly in Antarctic waters where these whales

abound. The development of the hydrogenation process for hardening and stabilizing the various fats has created a new basis for the whale-oil industry, which is conducted chiefly to provide low-cost fats for soap and food in the deficit fat-producing countries of Europe.

With the modern devices, whale oil production has attained peaks unprecedented in previous whaling history. The relentless pursuit of the whale has given rise to the fear that the stock of whales will soon be exhausted. This fear has resulted in several international whaling agreements, although the principal achievements of the international meetings to date have been meager. Despite the many limitations imposed, the number of whales killed and the quantity of oil produced have continued to increase.

Changes in the price of whale oil, according to Professor Brandt, are determined more by variations in the price of competitive fats than by changes in the supply of whale oil, which although large in itself represents only a small fraction of the world output of fats. The sharp decline in world prices of fats and oils in 1930–31 brought about a crisis in the whale-oil industry, necessitating a drastic decline in whaling costs. Professor Brandt believes that costs have now been reduced so far that there is only slight opportunity for further refinement, particularly since oil production per floating factory and per killer boat per season have declined consistently, except for one season, since 1932–33. Principal reasons for these declines have been the curtailment of the length of the Antarctic whaling season, the increasing number of expeditions, and "especially the increasing number of killer boats, employed against a stable or declining whale population."

Other technical subjects treated include the world's whale-oil supplies; international competition in whaling; utilization of whale oil; transport, storage, and marketing; duties, taxes and protective measures; and the outlook for whale oil and whaling, about which, however, much uncertainty still exists. Little is said concerning the elasticities of supply and demand for whale oil, an important omission in the analysis. And the chapter on prices is too general to add greatly to our knowledge of price behavior. Nevertheless, the book is a useful and interesting survey of the whale-oil industry.

ROBERT M. WALSH

Bureau of Agricultural Economics

Tobacco: A Study of Its Consumption in the United States, Jack J. Gottsegen. New York, Pitman Publishing Corporation, 1940. Pp. xxix+279. $3.75.

Tobacco consumption is a neglected field. Most economic treatments of the tobacco industry have been solely concerned about concentration within the industry. Therefore, Dr. Gottsegen is to be credited for having recognized the need of a large scale study of the consumption of tobacco products. However, this monograph does not fill the gap, even though it has left very few stones unturned.

Perhaps the greatest faults of the book are its inclusiveness and the apparent haste in which it was written. For in a book purporting to be an economic analysis, one finds pages dealing with the grades of smokers and non-smokers in high school, the effects of tobacco on the circulatory system, individual differences in the tolerance for tobacco, and the rational manner of breaking in a pipe; and only haste can account for numerous instances of bad grammar and spelling, and the offense of incorrect spelling of names in the bibliography.

The book's wide range is due mostly to Dr. Gottsegen's ideas of the economist's function in explaining tastes. Although the average economist accepts "taste" as a datum, Dr. Gottsegen goes deeply into the physiological and psychological bases of tobacco tastes. He concludes that tobacco usage is more a psychological than a physiological phenomenon, and that the main drive behind tobacco consumption is a social attitude called "fashion." So much importance is attached to fashion that the word appears in various guises on at least half the pages of the book. Custom is termed a "frozen fashion." Changes in tobacco consumption are made more orderly by the force of fashion, "as may be noted in the way in which smoking habits changed from cigars (large) through the intermediary types large cigarettes, and small cigars to cigarettes (small)." There is no factual evidence that this process of change did occur and certainly no grounds exist for associating such change with fashion.

The discussion of consumer responsiveness to price and income changes is good, even though inconclusive, and the treatment of the effects of advertising is well done. An expansion of the descriptive sections would have been very helpful. Small cigarettes are more than "a paper-wrapped product, a thousand of which weigh not more than three pounds." The only change in nature of product

that is considered is the change in value. Smoking and chewing tobaccos are lumped together and are neglected analytically. Price structure of brands and product differentiation are scarcely mentioned. These are topics which are important and published data exist for successful treatment. But Dr. Gottsegen had too many other things to do.

E. L. JACKSON

Agricultural Adjustment Administration

Agricultural Economics 1913–1938, Twenty-Fifth Annual Report of the Agricultural Economics Research Institute, Oxford, England. Oxford University Press. Pp. 79, 2/6.

While authorship is indicated only by a modest initialling at the end, this report is, of course, the work of Professor Charles S. Orwin, Director of the Institute. It consists of a historical summary of the first twenty-five years of work at the Agricultural Economics Institute, together with a brief review of the way in which the Institute came to be founded. The Agricultural Economics Institute is one of a series of agricultural research institutes, each established to specialize on a given field of study. The reasons given for this way of organizing agricultural research activities are of interest for comparison with those in the United States. These are stated as follows by the Development Commissioners in their report recommending establishment of such institutes: "Their object is to secure (1) continuity of work which is necessarily of considerable duration, and into which men have to educate themselves; (2) the concentration of several men, differently trained, upon the same group of problems; (3) economy in dealing with the larger problems."

The general arrangement is rather more like that of the Regional Research Laboratories now being established by the U. S. Department of Agriculture than like that of the American Agricultural Experiment Stations. The various institutes are usually attached to universities, however. This program for agricultural research in its various phases follows to some extent the pattern which developed out of the pioneer research in soils at Rothamsted. From 1924 on the work in agricultural economics has expanded through appointment of "Advisory Economists" at University College, Aberystwyth, Wales, at Wye, at Reading, at Cambridge, and at certain other points in England and Wales.

Of the subjects for which the Development Commissioners de-

sired to see at least one institute, the economics of agriculture was listed as eleventh and last. This institute was the youngest of the group until the establishment in 1923 of the one for agricultural engineering.

The nature of the research carried on has been modified over the years. Early emphasis was upon costing. Since then studies in policy, in supply and demand relations, in market organization, and various other subjects have come to have a place in the program. Since the research activities are very compactly summarized in the report itself, it seems undesirable to try to reduce these still further for purposes of this review. Interested readers will find it more useful to turn to the original, which is almost in outline form.

An interesting feature of the report is the reproduction of a number of historical pictures which occupy an honored place on the walls of the Institute.

M. R. BENEDICT

Giannini Foundation, University of California

Order and Possibility in Social Life, Douglas G. Haring and Mary E. Johnson. New York: Richard R. Smith Press, 1940. Pp. xii+772. $5.00.

Book I of this text in introductory sociology presents a description of the cultures found in widely scattered sections of the globe, thereby departing from the somewhat set form of most similar books. Books II to IV, deal with the biological and psychological development of man, and the nature of society. Book V traces the origin of culture and shows how culture accumulates. Two chapters are given to population. The remainder of section V treats "the broad general phenomena of those sequences of habitual interstimulation and responses which are ordinarily regarded as patterns of social organization," in the words of the authors. Book VI suggests implications of a scientific study of social life. Throughout the work the authors draw heavily upon Giddings and quote much from his works. They state in the preface that they are indebted to Giddings for many of the essential ideas in their point of view.

In considering this text the reviewer is chiefly concerned with its stated purpose as a text in Introductory Sociology. The descriptions of the varied ways of living of peoples from all over the world, as presented in the first section constitutes a very good introduction to the study of social life. The material will immediately catch the

interest of the introductory student and should broaden his comprehension of the true nature of sociology as a science. However, the remainder of the work is very technical and is pedantic in style. I doubt the value of such an intensive treatment of the biological and psychological development of man in an introductory text. These sections are carefully written but one is apt to forget that he is reading a text in introductory sociology and feel that he is reading texts in biology and psychology. The authors state that the presentation of the biological and psychological data is for the sole purpose of clarifying the concepts of the "great plasticity of the human organism and the mechanism of conditioning." They achieve this goal, yet the emphasis seems to be excessive. As for the other parts of the book, the very scientific and technical approach used would be of greater value with advanced and graduate classes in sociology. It might also have been desirable to include certain other phases of social interaction. It would seem that introductory sociology should offer the student a broader understanding of human behavior than is found in this text.

JUDSON T. LANDIS

Southern Illinois Normal University

The Diary of Alexander James McPhail, Edited by Harold A. Innis. Toronto: University of Toronto Press, 1940. Pp. 289. $2.50.

In this distinctive volume, Dr. H. A. Innis, Professor of Political Economy at the University of Toronto, who occupies an outstanding position as author, editor and bibliographer of Canadian works in Economics, has presented, in selective and annotated form, passages from the diary of the self-sacrificing president of the Saskatchewan and of the interprovincial wheat pool organisations between 1924 and his death in 1931.

To those acquainted with the story of the largest and most spectacular enterprise in the history of cooperative marketing by farmers, this book serves to give a revealing insight into the internal problems of policy and administration in the formative, expansionist, critical and disintegrative stages of the movement, and into the personalities of its leaders and officers as well as of prominent grain trade figures, bankers and politicians with whom McPhail and his associates had to deal.

The task confronting the editor has been a formidable one. A strictly chronological arrangement might have presented a more

continuous, personal record of McPhail's prodigious day-to-day activities and far-flung contacts, but the bald entries would have thrown only incidental light on the history of the Wheat Pool movement as a whole. On the other hand, the mere selection of copious extracts from McPhail's diary, correspondence and speeches to illuminate a new history of the Canadian Wheat Pool would have involved a sacrifice of the biographical interest and play of personalities inherent in the twelve-year diary of this great co-operative leader. Professor Innis has followed therefore the compromise plan of presenting selected diary entries in topical chapters together with interpretive editorial comments.

Like so many of the leading officers of the Western wheat pool organizations, John Andrew McPhail was of Scottish descent, the fatherless McPhail family migrating from the Bruce Peninsula of Ontario to a Manitoba homestead in 1898. His Highland blood, his austere religious upbringing and his pioneering youth were reflected in a puritanical moral earnestness, in sustained efforts at self-education and serious reading, in rigid self-regimentation, in combativeness tempered with patience, and in a democratic idealism blended with a shrewd business sense and penetrating appraisal of individuals.

McPhail's diary dates from 1919 when, after wartime employment with the Saskatchewan Department of Agriculture, he returned to his farm near Elfros, Saskatchewan and engaged with his brother in country purchasing and shipment of livestock to Winnepeg. These post-war years were marked by the active entry of Canadian farmers' organizations into provincial and federal politics, and by the agitation in Western Canada for re-establishment of the Canadian Wheat Board which had handled the entire 1919 crop on a compulsory pooling basis. Although McPhail had worked actively as a constituency organiser of the agrarian Progressive Party which captured 65 seats in the federal election of 1921, his real interest lay in cooperative rather than in political action by farmers. As a member of the Saskatchewan Grain Growers' Association, he was strongly opposed to the existence of self-perpetuating, high-salaried office-holding and interlocking directorships between the Association and the politically powerful Saskatchewan Cooperative Elevator Company, and he became convinced that the officers of the latter were more concerned with preserving their own organisation and positions than in supporting either the Association's

demand for a government wheat board or an interprovincial co-operative pool as sponsored by the Canadian Council of Agriculture. McPhail's insurgency led to his appointment as Secretary of the S.G.G.A. in 1922. The central chapters of the diary throw much light on the internal struggles through which McPhail's patient diplomacy, aided by the outside influence of the dynamic Aaron Sapiro (whom McPhail later came to distrust bitterly) succeeded in bringing together rival groups in the organisation of the Saskatchewan Wheat Pool in 1924, which two years later acquired the 450 country elevators and four terminal elevators of the Saskatchewan Cooperative Elevator Company.

Although Saskatchewan normally produces more wheat than Alberta and Manitoba combined, McPhail consistently championed the plan of interprovincial marketing, and his role in the organisation in 1924 of the Canadian Cooperative Wheat Producers' as the central selling agency of the three provincial pools was recognised by his election to the presidency of the latter as well as of the Saskatchewan Pool. This double burden he carried from the beginning to his death seven years later. By 1928 the cooperative organisation headed by McPhail had the largest turnover of any business in Canada, handling the wheat of 140,000 farmers, and marketing abroad through its own selling agencies in fifteen countries approximately one-fifth of all wheat entering into international trade in the 1928–29 crop year.

The diary entries included in the later chapters become, as Dr. Innis observes, "a tragic and poignant document." They reflect McPhail's stand against the rising movement in Saskatchewan for "a 100 per cent compulsory pool," and against central board members insistent on a holding policy in pool marketing. They reveal his desperate efforts to save the Pool organisation when in 1930 ever tumbling wheat prices fell below the basic $1.00 initial payment on the 1929 pool, the anguishing negotiations with the creditor banks, and with the western provincial premiers and Ottawa in obtaining government guarantees of the Pool's obligations, secured by their elevator assets. They tell of the heart-breaking necessity of closing the Pool's overseas selling offices and releasing the growers from their contracts following the appointment of a manager of the Central Selling Agency who would be acceptable to the banks and the Dominion government. McPhail's stern sense of duty restrained him from resigning in these dark days, but he paid the price with

his life at the age of 47. His successor, the Illinois-born, former vice-president T. C. Brouillette, lived to see the consummation in 1935 of the grain growers' long fight for a Canadian Wheat Board with power to establish a minimum seasonal price to producers, but two years later he too succumbed to the strain of cooperative leadership in adversity at the age of 51. Meanwhile the three western provincial "pool" organisations continue to function with conspicuous financial success as cooperative elevator companies, and the Canadian Cooperative Wheat Producers, as a joint public relations and insurance agency.

HARALD S. PATTON

Michigan State College

Population Trends and Adjustments in Arkansas, Wm. H. Metzler. Arkansas Agricultural Experiment Station Bulletin 388, 1940. Pp. 59.

The purpose of this bulletin is stated by Metzler, as follows:

"... to determine (1) the trends of population growth, decline, composition and movement in the state; (2) the adjustment of population to economic conditions in the various counties and areas of the state with particular reference to agriculture; and (3) the influence of sparsity and other population conditions on social and economic circumstances." (pp. 3–4)

This is an excellent statement of the sociological approach to population phenomena, that is, the processes of population change are viewed as partially dependent and partially independent variables in relation to the processes of social and economic change. Metzler's techniques of analysis, however, are not adequate for fulfilling his stated purpose. The most elementary requirement in such an analysis is subclassification, yet subclassification in terms of even the most obvious variables is neglected. For example, regional (county) differences in the ratio of children to women are demonstrated, but no allowance is made for variations due to urban and rural proportions, nor is the distribution of the state's half-million Negroes taken into account. To give another example, county indices of farm population pressure are developed in terms of the ratio of population to productive area divided by a similar ratio for the United States as a whole, without any regard whatsoever to variations in the area requirements of different types of farms. A similar defect vitiates the analysis of sparsity which is expressed merely as the inverse of population density.

At other points in the bulletin, sociological dogma is substituted for analysis. For example, the only reference to the foreign born or foreign stock is in terms of their numbers in the state as a whole, followed by the unelaborated statement that

> "Sociologists would deem the population to be too homogeneous to allow for as much cultural fusion as is desirable for social and cultural growth." (p. 6)

One searches the bulletin in vain for any evaluation of the sources. For example, Arkansas was not admitted to the Birth and Death Registration Areas until 1927, yet data on natural increase between 1920 and 1930 are presented without critical comment. And data on farms and farm population are abstracted from various agricultural censuses with no allowance for the possible effect of well-known changes in definitions.

DOROTHY SWAINE THOMAS

University of California

Rural Regions of the United States, A. R. Mangus. Work Projects Administration, Division of Research, 1940. Pp. 230.

This publication of the Work Projects Administration is an attempt to group the 3,070 counties of the United States into 32 rural-farm regions and 218 subregions. The objective was to demarcate these areas in such a manner as to obtain comparatively homogeneous social and economic conditions within each region and also to obtain significant differences among them. A further classification is made seeking to take into account the rural-nonfarm population and results in 34 regions and 264 subregions.

These classifications are based on indices which were arranged so as to maximize the amount of internal similarity with respect to such factors as the percentage of farms having certain household conveniences, rural-farm population fertility, farm tenure, farm income, and degree of self-sufficiency. These factors were selected as being highly correlated with a number of other variables but "were not so highly inter-correlated among themselves as to give identical results if used singly."

The work appears to be carefully done and should be especially useful to administrators of the various rural programs in making it possible for them to take local differences among areas into account when attempting to fit programs to specific needs. It should

also prove useful to research workers whose topics of investigation require consideration of local geographic differences.

N. L. WHETTEN

University of Connecticut

Suye Mura: a Japanese Village, John F. Embree. Chicago, Ill.: University of Chicago Press, 1939. Pp. xxviii+354. $3.00.

St. Denis: a French-Canadian Parish, Horace Miner. Chicago, Ill.: University of Chicago Press, 1939. Pp. xx+283. $3.00.

Intellectual perspective on the problems of American farmers is not obtained solely through study of price and production trends, market transformations, or changing technologies. There is need to understand also the role of agricultural peoples in their full-rounded life in the whole society. Aside from acquaintance with the growing body of sociological studies in this country, one of the best ways to grasp the pattern of change is to observe the alterations occurring elsewhere in the world within the peasant-folk sectors of industrialized nations. These two books by Embree and Miner will bring the agricultural economist valuable insight through their depiction of societies sufficiently strange to free him from his professional prejudices as he reads about them. Both books hold to the high standard of the Chicago Ethnology Series.

Miner's book includes chapters on the historical background, the land and people, the society upon the land, kinship and the family cycle, the role of religion, control of nature, the yearly round, childhood, marriage to mourning, and the old and the new in the culture of French Canada.

Embree's description of the Japanese village covers similar topics: village organization, family and household, forms of cooperation, social classes, the life history of the individual, religion, and changes from the old to the new.

There are differences between these two villages in addition to their differing national locale. In Suye Mura the central government has instigated many more social changes and has closely controlled the entrance of new traits. In St. Denis the church acts as a strong brake on the new while no agency deliberately fosters new things. In Japan the village is a cooperative work unit, while in St. Denis cooperation among families is less marked and follows mainly kinship lines when it occurs.

More important, however, are the similar trends. In both cases

local groups are in process of being brought at accelerating rate into close economic, political, and cultural fusion with a larger society. These folk societies are similar to primitive ones in many ways. The local group is intimate, kinship ties are strong, life follows the round of agricultural seasons and the recurring religious rites. Life is lived in terms of "common traditional understandings" which are ceaselessly expressed and renewed in beliefs, institutions, rituals. Sanctions of behavior are strongly sacred.

They are unlike primitive societies, however, in that they participate in a money economy, sell in urban markets, go to school, vote, are subject to national legal and economic regulations. And they are aware of their joint existence with the city part of the society; they view themselves over against urban folk and ways.

Both communities are undergoing a parallel disorganization and reorganization under the impact of the external unifying forces. Local groupings are being undermined as hired labor replaces exchange labor, as the desire for more money income to buy more urban machines and goods leads to altered modes of production. The shift to a money economy fosters increased rationality, lessened neighborly or family cooperation, hired labor, new occupational and status groups, new prestige values. Rational production brings larger crops and more money, but also the breakdown of the smoothly running social order. (It is significant that the Japanese government is unable to prevent or offset the specific results of money economy.) Religion less adequately interprets, sanctifies, or regulates daily life. A pauper group, crime, parent-child friction, and economic insecurity are in train of development.

In French Canada the traditional balance of large families, family self-sufficiency, and new land for expansion has been upset by the end of the supply of good land. A shift to industrial employment speeded up the diffusion of urban traits but the closing of this outlet conjoined to the rigid taboo on birth control has created a crisis.

These brief summaries should justify our recommendation of the books. Anyone who undertakes the pleasant task of reading these two lucid descriptions should be rewarded by a deeper understanding of the problems of commercial agricultural communities, sharecroppers, proposals for self-sufficient farming, and agricultural planning.

Iowa State College C. ARNOLD ANDERSON

NEWS ITEMS

The 13th annual meeting of the Western Farm Economics Association was held at Pullman, Washington and Moscow, Idaho, on July 10, 11, and 12. Dr. M. R. Benedict was elected President, Dr. R. R. Renne was elected Vice President, and Harold F. Hollands was re-elected Secretary-Treasurer.

Professor George T. Blanch was granted a sabbatical leave for the school year 1940–41 from Utah State Agricultural College to complete his work for a doctor's degree at Cornell University.

John Blum and Mr. Elmer Hallowell of the Division of Land Economics have been working on a cooperative project with the University of New Hampshire. They are studying the influence of summer homes on the economy of local communities.

W. K. Bing, Agricultural Economics at Clemson College, studied this summer in the school of rural social economics at the University of Virginia.

Mabelle Booth received her M.A. from Columbia and serves as laboratory assistant, Department of Agricultural Economics, Massachusetts State College.

George F. Brandow has accepted a position as Professor of Agricultural Economics at the Pennsylvania State College. Doctor Brandow was formerly Extension Instructor of Prices at Cornell University.

Raymond G. Bressler, Jr. formerly Secretary of the New England Research Council, was appointed Assistant Professor in Agricultural Economics, University of Connecticut on December 1, 1939.

W. H. Brown, who has been a research assistant at Harvard University during the past three years, is now on the staff of the University of Tennessee working on the project which is being carried on in collaboration with the Tennessee Valley Authority. Dr. J. D. Black has been assisting in the planning of this project, also Dr. R. H. Allen, of the University of Kentucky, and Dr. Walter Wilcox of Iowa State College.

Mark T. Buchanan was appointed Assistant Agricultural Economist, Agricultural Experiment Station, State College of Washington, effective July 1, 1940. Dr. Buchanan completed the requirements for the Doctor of Philosophy degree at Cornell University in June, 1940, where he studied under a fellowship from General Motors Corporation to investigate international prices.

Richard S. Bylin, who was Research Assistant, Giannini Founda-

tion, University of California, has joined the Fruit and Vegetable Division of the Surplus Marketing Administration in Washington, D. C.

G. Alvin Carpenter, now employed with the Division of Farm Management and Costs, Bureau of Agricultural Economics, has been appointed as Assistant Professor of Agricultural Economics and Marketing on the staff of the Department of Agricultural Economics, Utah State Agricultural College.

John Chandler of the Division of Farm Management and Costs is now at Durham and is working on a cooperative project with the University of New Hampshire. Mr. Chandler is Assistant Forest Economist and is studying forestry phases of the farm management problems in Coos County.

George B. Clarke left the Agricultural Economics staff, University of Connecticut, in March, 1940, to become Research Tax Director in the Connecticut State Tax Department.

Alvin E. Coons joined the staff of South Dakota State College this fall as Assistant Professor of Agricultural Economics and Assistant Economist in the Agricultural Experiment Station. He was formerly instructor in Economics at Iowa State College.

Roger B. Corbett, formerly the Director of the Connecticut Agricultural Extension Service and the Coordinator of Agriculture, was named Dean of the new College of Agriculture, University of Connecticut. On September 15, however, Dr. Corbett resigned from the University to become the Director of the Experiment Station at the University of Maryland.

Howard Cottam, who has been employed in research at the Ohio State University, was appointed Assistant Professor of Rural Sociology at the Pennsylvania State College. He was originally from Utah and did the major part of his graduate work at the University of Wisconsin.

B. Bradford D. Crossmon, Instructor in Agricultural Economics at Rhode Island State College, resigned August 15 to accept a position at the University of Connecticut.

Lawrence Bryce Darrah has resigned from his position in Agricultural Economics at the Pennsylvania State College and has accepted a position at Cornell University.

R. F. Daly, formerly in the Department of Agricultural Economics, University of Illinois, has accepted a position at Branch Agricultural College, Cedar City, Utah.

Arthur Dewey, formerly BAE, Representative for Connecticut, is now with the Division of Land Economics.

Parry Dodds from Iowa State College has been appointed instructor in the Department of Agricultural Economics, Massachusetts State College.

R. J. Doll, Agricultural Economics, Kansas State College, has been granted leave of absence for the current college year to study at the University of Minnesota.

S. A. Engene has been promoted to Assistant Professor of Agricultural Economics, University of Minnesota.

Arval Erikson, Iowa State College is now at the University of New Hampshire as Assistant to the Director of the Experiment Station and Assistant Professor of Agricultural Economics.

B. H. Frame has been advanced to the rank of Associate Professor in Agricultural Economics, University of Missouri. Mr. Frame has been with the department since 1921, when he succeeded R. M. Green in accounting.

Appointment of W. O. Fraser to head the Livestock, Meats, and Wool Division, Agricultural Marketing Service, U.S.D.A., became effective July 1. Mr. Fraser was associate head of the division for the last 3 years. He has been in Government service for 16 years, largely in livestock and meat market news and standardization work.

G. W. Freemyer, formerly assistant in the Department of Agricultural Economics, University of Illinois, has been granted an Institute of American Meat Packers Fellowship for study at the University of Chicago.

Walter U. Fuhriman has resigned his position as Associate Professor of Agricultural Economics at Utah State Agricultural College to accept a position as Agricultural Economist with the Division of Farm Management and Costs, Bureau of Agricultural Economics, Far Western Area. Dr. Fuhriman is stationed at Pullman, Washington, where he is cooperating with the Washington Agricultural Experiment Station and other agencies in a study of suitable types of farming for the Columbia Basin Reclamation Farming Project.

John R. Greenman, formerly Acting Associate Professor of Agricultural Economics, University of Florida, has been appointed State-BAE Representative, Division of State and Local Planning, his appointment becoming effective on September 16, 1940.

Harold Grinnell has been granted a year's leave and will undertake graduate work at Cornell.

V. E. Grotlisch, who has been in charge of the administration of the Naval Stores Act since 1938, will act in charge of the work in the Agricultural Marketing Service.

John Guthrie, who has been assisting with the seminar in Agricultural policy in the Harvard Graduate School of Public Administration for the past two years, is now on the staff of Washington State College. His position in the School of Public Administration has been given to Mr. Wilfred Malenbaum.

Albert Hagan has been added to the Extension staff in Agricultural Economics, University of Missouri, to succeed Mr. D. B. Ibach, who resigned after a year's leave of absence to take up work in the United States Department of Agriculture. Mr. Hagen was called to the Specialist's duties after having served as a County Agent.

Wesley J. Hansen has been appointed to the staff in Farm Management, University of Connecticut.

H. L. Hawley joined the Commercial Research Department of Swift & Co., in Chicago, following the completion of his doctorate at Purdue University, September 1. Dr. Hawley will conduct research in factors affecting hog prices.

J. R. Hays accepted the position of Assistant Agricultural Economist, Flood Control Survey, BAE, with headquarters at Dayton, Ohio, following the completion of his doctorate at Purdue University in June.

E. C. Hedlund, formerly in the Department of Agricultural Economics, University of Illinois, will take over the marketing extension work handled by L. H. Simerl, who will study during 1940–41 at the University of Chicago.

Thomas W. Heitz, marketing specialist of the Agricultural Marketing Service, U.S.D.A., has resigned effective November 4, 1940, to enter commercial work.

B. H. Hibbard, who reached retirement at Wisconsin this past year, is teaching the first semester at Oklahoma A. & M. College, Stillwater, Oklahoma. Prof. Hibbard will conduct graduate classes in advanced agricultural economics.

William T. Hicks has been transferred by the United States Department of Agriculture from the Forest Service to the Bureau

of Agricultural Economics. He is stationed at Clemson College as State Representative for the Bureau of Agricultural Economics in South Carolina.

G. T. Hudson, formerly in Rural Sociology, University of Illinois, in the Department of Agricultural Economics, will take over the extension work of E. H. Regnier, who has a leave of absence for graduate study at Cornell University.

Paul Huefner has been employed by the Department of Agricultural Economics at Utah State Agricultural College and the Bureau of Agricultural Economics on state and local planning.

David Ross Jenkins of Columbia University has been appointed Assistant Rural Sociologist and Assistant Professor of Rural Sociology at Clemson College. Doctor Jenkins will occupy the position made vacant by the resignation of Dr. B. O. Williams who went to the University of Georgia. Doctor Williams reported for duty at the University on September 1.

Magnus B. Johnson, Forman, North Dakota, has been appointed Assistant in Agricultural Economics, University of Tennessee.

Francis Jones, research assistant at Harvard University, during the past year has taken a position under Dr. O. C. Stine in the Bureau of Agricultural Economics.

A. Alexander Joss, has been appointed Instructor in Agricultural Economics at Rhode Island State College, effective September 1, 1940. Mr. Joss's time will be divided between teaching and research.

Edward Karpoff, Agricultural Economics, University of Connecticut, is working in the Connecticut State Tax Department.

S. O. Kessler, Extension-Economist in Farm Management at Purdue University, was granted a year's leave of absence beginning September 1 to accept a Farm Foundation Fellowship at the University of Chicago.

H. L. Koeller, formerly in the Department of Agricultural Economics, University of Illinois, has accepted a position with the Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.

Gerald E. Korzan, Farm Management, South Dakota State College, has been appointed to succeed Max Myers, who has taken leave of absence to do graduate work at Cornell University.

G. A. Lee, formerly in the Department of Agricultural Economics, University of Illinois, has accepted a position with the Chicago Milk Market Administration.

F. F. Lininger has been appointed Vice Dean and Vice Director of the School of Agriculture and Experiment Station of the Pennsylvania State College. Doctor Lininger is continuing as Head of the Department of Agricultural Economics and Rural Sociology.

J. W. Lloyd, Professor of Fruit and Vegetable Marketing, Department of Agricultural Economics, University of Illinois, is on leave of absence for 1940–41. Dr. Lloyd's plans include study of fruit and vegetable marketing problems in selected Western States and Latin-American countries.

Alan MacLeod resigned his position as Assistant Economist in Marketing at the University of New Hampshire in June to accept a position with the Bureau of Agricultural Economics. He is now executive secretary of the New England Research Council, a voluntary coordinating council composed of New England research agencies and the United States Department of Agriculture.

J. H. McCoy and H. J. Meenen have been appointed instructors in Agricultural Economics at Kansas State College.

Wallace McMartin has accepted a temporary appointment with the Division of Farm Management and Agricultural Economics, Agricultural Experiment Station, State College of Washington, to cooperate in a study of suitable types of farming for the Columbia Basin Reclamation Farming Project. For the past year, he has been teaching Farm Management at the State College of Washington.

Orrin Jay Marcy, Kansas State Agricultural College, has been appointed to the staff in Agricultural Economics and Farm Management at the University of Maine.

Richard E. Moody has been appointed Acting Associate Professor of Agricultural Economics, University of Florida, for the academic year 1940–41.

K. D. Naden, formerly in the Department of Agricultural Economics, University of Illinois, was granted an assistantship in the Department of Agricultural Economics, University of California.

Rex J. Morthland of the Illinois Tax Commission has been appointed Assistant Professor in Agricultural Economics, University of Connecticut.

Alden E. Orr returned July 1, 1940, from a year of graduate work at the University of Illinois, to his position in the Department of Farm Management and Agricultural Economics, State College of Washington.

Albert L. Owens has been appointed Acting Instructor during Assistant Professor E. J. Niederfrank's leave of absence.

Leonard W. Parker, formerly with the Dairy Section in Washington, is now with the Federal Milk Administrators Office in New York City.

Newton M. Penny, Assistant Agricultural Economist, Georgia Experiment Station, has obtained a leave of absence to study at Cornell University during the fall and winter semester.

Byron Peterson is undertaking a study of credit problems in the wholesale milk areas in New Hampshire.

Milo J. Peterson, Assistant Agricultural Economist in the South Carolina Experiment Station, completed the work for his Ph.D. at Cornell University this summer. He has returned to take up his work at Clemson College.

G. A. Pond has been promoted from Associate Professor to Professor of Agricultural Economics, University of Minnesota.

Benj. D. Raskopf, Assistant Agricultural Economist, University of Tennessee, is spending six months in West Tennessee, making a study of cotton marketing problems in that area.

Ernest Riley has been appointed Agent in the Agricultural Marketing Service, U.S.D.A., to work in cooperation with Clemson College on cotton marketing problems.

Harold B. Rowe was granted leave of absence from the Brookings Institution on September 1 to join the staff of the Consumers' Division of the Advisory Commission to the Council of National Defense.

Sargent Russell is leaving service at the Sheffield Farms Dairy to become research assistant, Department of Agricultural Economics, Massachusetts State College.

L. A. Salter has joined the faculty of the Agricultural Economics Department at Wisconsin this fall as Assistant Professor of Land Economics.

L. W. Schruben, formerly in Agricultural Economics, University of Illinois, will devote full time to the combined Farm and Home Account Project.

William L. Slate, Vice Director in charge of the Storrs Agricultural Experiment Station, has been granted four months leave of absence to begin on October 1, 1940. Roger B. Friend of the Connecticut Agricultural Experiment Station at New Haven will be in charge during Mr. Slate's absence.

Glenn R. Smith, formerly Associate Agricultural Economist at North Carolina State College, has accepted a position as director of research, Farm Credit Administration, Columbia, South Carolina. Dr. Smith succeeds Dr. Marvin A. Brooker, who was made vice president and secretary of the Bank for Cooperatives. He reported for duty July 1.

N. L. Smith, formerly in the Department of Agricultural Economics, University of Illinois, has accepted a position with the Illinois Cooperative Crop Reporting Service, Springfield, Illinois.

Mr. Albert Thornbrough, on leave from the Bureau of Agricultural Economics, is handling the undergraduate teaching of Agricultural Economics at Harvard University this year.

James M. Tinley, Associate Professor of Agricultural Economics in the University of California at Berkeley has returned from a year's sabbatical leave spent in South Africa where he studied problems in agricultural labor, and government programs and policies relating to agriculture.

George S. Wehrwein has returned to the Department of Agricultural Economics at Wisconsin after teaching at Cornell University during the second semester of the past year and teaching at the University of Chicago during the summer. He also taught a special course in Agricultural Land Economics at the Interdenominational School for Rural Pastors at Garrett Biblical Institute, Evanston, Illinois from June 10 to July 12, 1940.

C. V. Whalin was in charge of the Livestock, Meats and Wool Division for nearly 19 years. He will devote full attention to the conduct and direction of the Division's technological investigations and research studies on meats and meat products. Mr. Whalin, who asked to be relieved of administrative responsibility, will continue with the division in a research capacity.

Richard Wheeler, formerly from the University of Connecticut, is now with the BAE, Division of Farm Management and Costs, and is working on a cooperative project in New Jersey.

Nathan L. Whetten, Professor of Sociology, Storrs, Connecticut, has been appointed Dean of the Graduate School. Dr. Whetten assumed his new post in September of this year.

George C. White, Vice Dean in charge of Resident Instruction, has been appointed Acting Dean of the College of Agriculture, Storrs, Connecticut.

H. A. White, formerly in the Agricultural Marketing Service in

cooperation with the South Carolina Experiment Station has been made Assistant Agricultural Economist and will devote all of his time to research in marketing in the department of Agricultural Economics and Rural Sociology at Clemson College.

Karl T. Wright who was granted a leave of absence from the Michigan State College to continue his graduate work at Cornell University, completed his requirements for a Ph.D. degree in September, 1940. On his return to the Michigan State College his title designation has been changed from Research Assistant in Farm Management to Associate Professor and Research Associate in Farm Management.

A new department of rural sociology has been created at the North Carolina State College of Agriculture and Engineering. At present the staff consists of Dr. C. Horace Hamilton, Head, formerly Senior Social Scientist in the United States Department of Agriculture, and Selz Mayo, assistant professor. The work in rural sociology has been strengthened by the establishment of a statistical laboratory under the direction of Dr. Gertrude M. Cox, who until recently was Research Assistant Professor, Statistical Section, Iowa Agricultural Experiment Station.

GEORGE MARTIN PETERSON

1897–1940

George Martin Peterson was born on August 24, 1897, at Minneapolis, Minnesota. He was one of fourteen children born to parents who had migrated to the United States from Sweden.

He received his elementary education at rural schools in Kanebec County, Minnesota, and his high school education and a year of normal-school training at Mora, Minnesota, obtaining a teacher's certificate in 1916. After teaching for a year in a rural school, he entered the University of Minnesota in the fall of 1917, obtaining his Ph.D. in 1927, majoring in Agricultural Economics. While pursuing his graduate studies he held the positions first of Assistant and later of Instructor in the University School of Business Administration. In 1927 he was appointed as Economic Advisor to the Federated Societies of Planning and Parks in Washington, D. C., and from 1928 to 1930 he served as Analyst and Economic Advisor in the United States Treasury Department. He joined the faculty of the University of California College of Agriculture in 1930 as Associate Professor of Agricultural Economics, Associate Agricultural Economist in the Experiment Station, and Associate Agricultural Economist on the Giannini Foundation, which positions he held at the date of his death, June 18, 1940. He passed away at the University of California Hospital after a long and painful illness.

His frugal upbringing left an indelible stamp on his character. Although he had a keen sense of humor, he was very critical of all shams. His careful and objective analyses of involved economic problems in both his writings and in his teaching have contributed much to a clearer understanding of certain economic principles and institutions. His interest in his chosen field was a continuous search for and understanding of those principles which govern and influence human welfare; he believed that the general standard of well-being of the people of a country could not be advanced by measures designed merely to maximize the relative share going to one group at the expense of other groups and that the national income in the last analysis must be assessed, not in terms of monetary values, but in terms of the quantum of goods and services produced and con-

sumed. He contended that a stable and progressive economy could be insured only if the buying power of the low income groups was raised. His most important contributions to knowledge in the field of economics were books and scientific articles dealing with the problems of agricultural production, with comparisons of agricultural and nonagricultural income, with the composition of the agricultural population, and with the principle of diminishing returns.

But it was as a teacher that Professor Peterson was especially outstanding. The large number of students who attended his classes at both the Universities of Minnesota and California are unanimous in their praise of him as an instructor.

In 1923, while yet a student at the University of Minnesota, he married Nellie Kivley. He is survived by his wife and two children, Virginia and Quentin, all of Berkeley.

J.M.T.

NILS A. OLSEN

1886–1940

Nils A. Olsen, Chief of the Bureau of Agricultural Economics from 1928 to 1935, and for the past few years Vice-President of the Equitable Life Assurance Society, New York, died July 28, at the Lawrence Memorial Hospital, Bronxville, N. Y. He had been ill for approximately 4 months with a streptococcus infection.

Mr. Olsen was born at Herscher, Illinois, August 31, 1886. He was graduated from Luther College, Iowa, in 1907; was a graduate student in history and economics at Johns Hopkins University, 1907–08; and in 1909 received his Master's degree in economics at the University of Wisconsin. He was instructor in history and economics at Muhlenberg College, Pennsylvania, 1909–10, and at Harvard University, 1910–12; from 1912 to 1919 he managed several farms.

Entering the Department of Agriculture in 1919 as an assistant agricultural economist, Mr. Olsen was progressively promoted through the various economic branches and on July 16, 1928 he was appointed Chief of the Bureau and served in that capacity until his resignation in April 1935 to accept a position as manager of the Farm Investment Department of the Equitable Life Assurance Society being made second vice-president of the Society a

year later and continuing in charge of the department until his death.

Mr. Olsen is survived by two sisters and three brothers. He was not married. Interment was made at his home in Herscher, Illinois.

FREDERICK PATTISON WEAVER

1882–1940

Frederick Pattison Weaver, member of the faculty of the Pennsylvania State College for thirty years, died September 5.

He was born November 7, 1882, at Millersburg, Pa., the son of Philip and Amelia Daniels Weaver. He was married June 7, 1919, to Marjory Irene Barto, who with two daughters, Jean Frances, 19, and Claire Louise, 16, survive.

In 1914 Dr. Weaver was graduated with honors from the Pennsylvania State College, in 1923 he received the master of science degree from Cornell University and in 1930 the Ph.D. degree from the same institution.

As a youth the deceased worked on his father's farm. From 1899 to 1903 he taught in the public schools of Dauphin county. For one year he served as assistant in the chemical laboratory of the Pennsylvania Steel Company, and from 1904 to 1910 he was chemist for the Irvona Coal and Coke Company, Coalport. In 1910 he came to the College as assistant in agricultural chemistry and served in that capacity until 1915 when he was appointed assistant state leader of county agents.

Professor Weaver became assistant director of agricultural extension in 1920 and continued until 1925 when he was appointed head of the department of agricultural economics. Ill-health forced him to retire in February, 1938, and he was appointed Emeritus Professor of Agricultural Economics.

Other positions that he filled with great credit to himself and valuable service to the public during his busy life were: collaborator, Pennsylvania Department of Agriculture, in charge of farm taxation studies, 1925–26; member, Mineral and Forest Land Taxation Commission of Pennsylvania, 1932–35; member, Committees on Taxation and on Rural Housing of President Hoover's Housing Commission, 1931–32; and director, Farm Credit Administration of Baltimore since 1933.

F.F.L.

Workers in the field of agricultural economics will regret learning of the death of Dr. J. M. Hamilton, Professor of Economics at Montana State College for many years, on September 23.

Dr. Hamilton worked closely with Dr. M. L. Wilson at the Montana institution, and was an active student of agricultural economic problems. At the time of his death, he was Professor of Economics and Dean of Men, and had also served the institution from 1904 to 1919 as its president.

Word has been received of the death of Dr. Carl Alsberg of the University of California, at Berkeley, Thursday, October 31.

PRELIMINARY PROGRAM FOR THE THIRTY-FIRST ANNUAL MEETING OF THE AMERICAN FARM ECONOMIC ASSOCIATION

ROOSEVELT HOTEL, NEW ORLEANS, LOUISIANA
DECEMBER 27, 28, 29, 1940

Friday, December 27

Friday Morning

10:00 A.M.—THE COTTON SITUATION

Chairman: Calvin B. Hoover, Duke University
Paper: Future of Cotton in the Economy of the South
O. C. Stine, U. S. Bureau of Agricultural Economics
Discussion: George H. Aull, Clemson Agricultural College
C. A. Bonnen, Texas Agricultural & Mechanical College
Claudius Murchison, The Cotton-Textile Institute
Bennett S. White, Jr., University of Kentucky

Friday Afternoon

2:00 P.M.—ROUNDTABLES

1. Theoretical Aspects of Land Economics
Chairman: David Weeks, University of California
Papers: Recent Developments in Rent Theory
Conrad H. Hammar, University of Missouri
Institutional Economics in Land Economic Theory
George S. Wehrwein, University of Wisconsin
Discussion: C. I. Hendrickson, Agricultural Adjustment Administration
A. C. Bunce, Iowa State College
2. Farm Management Research
Chairman: F. F. Elliott, U. S. Bureau of Agricultural Economics
Basis of Discussion: Sampling and Classification of Farms for Research in Farm Management. W. W. Wilcox, W. T. Goodsell, and Raymond Jessen. JOURNAL OF FARM ECONOMICS, November, 1940
Discussion: David L. McFarlane, University of Kentucky
E. B. Hill, Michigan State College
3. Market Price Mechanisms
Chairman: W. W. Fetrow, Farm Credit Administration
Papers: Grade Price Differentials in Cotton Marketing
L. A. Howell, U. S. Bureau of Agricultural Economics
Seasonal Patterns in Tobacco Prices
C. M. Clark, University of Kentucky
Discussion: Roy A. Ballinger, Louisiana State University
W. E. Paulson, Texas Agricultural and Mechanical College
S. L. Clement, North Carolina State College

Friday Evening

5:30 P.M.—MEETING OF EXECUTIVE COMMITTEE

8:00 P.M.—WAR, NATIONAL DEFENSE AND AGRICULTURE

Chairman: Asher Hobson, University of Wisconsin
Papers: The Newly Developing International Situation and American Agriculture
O. B. Jesness, University of Minnesota
Economic and Social Effects of the War and the Defense Program on American Agriculture
Eric Englund and Ray C. Smith, U. S. Bureau of Agricultural Economics
American Agriculture in the New War and Defense Situation
J. D. Black, Harvard University

Saturday, December 28

Saturday Morning

7:30 A.M.—GROUP BREAKFASTS

10:00 A.M.—ROUNDTABLES

1. Land Tenure
Chairman: C. L. Stewart, University of Illinois
Papers: Legal Aspect of Land Tenure
Marshall Harris, U. S. Bureau of Agricultural Economics
The Effects of Tenure on Agricultural Efficiency
R. W. Schickele, Iowa State College
Progress of Tenure Groups
H. C. Hoffsommer, Louisiana State University
Discussion: O. C. Brannen, University of Arkansas
R. H. Allen, University of Kentucky

2. Farm Management Research for Low Income Farms
Chairman: G. A. Pond, University of Minnesota
Paper: Orientation of Farm Management Research to Low Income Farms
Sherman E. Johnson and Donald R. Rush, U. S. Bureau of Agricultural Economics
Discussion: O. R. Johnson, University of Missouri
G. W. Forster, North Carolina State College
S. W. Warren, Cornell University
P. F. Aylesworth, Farm Security Administration

3. Agricultural Statistics
Chairman: H. H. Schutz, U. S. Agricultural Marketing Service
Papers: Objective Sampling in Estimating Southern Crops
D. A. McCandliss, U. S. Agricultural Marketing Service
Problems in Estimating Texas Citrus Production
V. C. Childs, U. S. Agricultural Marketing Service

Highlights of the 1940 Census
Z. R. Pettet, U. S. Census Bureau
Discussion: C. W. Vickery, Texas Highway Department
T. R. Hamilton, Texas Agricultural and Mechanic Arts
T. R. Hedges, University of Arkansas

Saturday Afternoon

2:00 P.M.—AGRICULTURE IN THE AMERICAN ECONOMY

(Joint Program with American Economic Association)
Chairman: W. I. Meyers, Cornell University
Papers: A Review of Fundamental Factors
H. R. Tolley, U. S. Bureau of Agricultural Economics
Economic Effects of Agricultural Programs
T. W. Schultz, Iowa State College
Discussion: J. D. Black, Harvard University
B. H. Hibbard, University of Wisconsin

Saturday Evening

7:00 P.M.—JOINT PROGRAM WITH AGRICULTURAL HISTORY SOCIETY

8:00 P.M.—ROUNDTABLES

1. Research in Farm Tenancy
Chairman: L. P. Gabbard, Texas Agricultural and Mechanical College
Papers: Status and Appraisal of Research in Farm Tenancy
Joseph Ackerman, The Farm Foundation
Needed Research in Farm Tenancy
M. M. Kelso, U. S. Bureau of Agricultural Economics
Discussion: Karl Brandt, Food Research Institute
James G. Maddox, Farm Security Administration
2. Reappraisal of the Graphic Method of Correlation Analysis
Chairman: E. J. Working, University of Illinois
Papers: Application and Uses of the Graphic Method of Correlation Analysis
H. R. Wellman, University of California
The Place of and Limitations to the Graphic Method of Correlation in Economic Analysis
W. C. Waite, University of Minnesota
Mathematical Basis of the Graphic Method
M. A. Girshick, U. S. Bureau of Agricultural Economics
3. Problems of Graduate Students in Rural Social Sciences
Chairman: R. M. Grigsby, Louisiana State University
Discussion leader: H. C. Taylor, The Farm Foundation
Student Committee: R. M. Grigsby, Louisiana State University
W. C. Binkley, University of Kentucky
E. R. Glover, Texas Agricultural & Mechanical College
C. M. Hardin, Purdue University

E. C. Hedlund, University of Illinois
E. P. Heiby, Ohio State University
D. G. Miley, Virginia Polytechnic Institute

Sunday, December 29

Sunday Morning

9:00 A.M.—ANNUAL BUSINESS MEETING

10:30 A.M.

1. Agricultural Credit
   Chairman: W. E. Grimes, Kansas State College
   Papers: Current Problems in Agricultural Credit
   A. G. Black, Farm Credit Administration
   The Function of Credit in Modern Agriculture
   E. C. Young, Purdue University
   Discussion: L. J. Norton, University of Illinois
   W. G. Murray, Iowa State College
   Paul Bestor, The Prudential Insurance Company of America

2. Agricultural Labor
   Chairman: J. I. Falconer, Ohio State University
   Papers: Methods of Wage Determination in Agriculture
   M. R. Benedict and R. L. Adams, University of California
   The Changing Structure of Agriculture and its Consequences for Agricultural Labor
   John A. Hopkins, Iowa State College
   Discussion: O. E. Mulliken, Agricultural Adjustment Administration
   R. J. Saville, Louisiana State University

12:30 P.M.—ANNUAL LUNCHEON

Recruiting and Training of Personnel in the Rural Social Sciences
T. W. Schultz, Iowa State College

Sunday Afternoon

3:00 P.M.—MEETING OF THE EXECUTIVE COMMITTEE

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1940

SUBJECTS

AUTHORS

(Articles are indicated by asterisk*)

NOTES

BOOK REVIEWS

(Reviewer's name in parentheses)

1940 Annual Meetings
AMERICAN FARM ECONOMIC ASSOCIATION

New Orleans, December 27, 28, 29

HEADQUARTERS: Roosevelt Hotel

The rates at this and nearby hotels, effective until 6:00 P.M., December 30, are:

Hotels	*Single Rooms*	*Double Rooms* Two Persons	*Double Rooms* Twin Beds Two Persons
Roosevelt	$3.50 and up	$4.50 and up	$7.00 and up
De Soto	2.50–3.50	4.00 and up	4.50 and up
Jung	3.00 and up	5.00 and up	6.00 and up
Lafayette		3.00–4.50	4.00–6.00
La Salle		3.50 and up	4.50 and up
New Orleans	3.00–3.50–4.00	4.00–6.00	6.00-7.00
Monteleone	3.00–3.50–4.00	5.00–6.00	6.00-7.00
St. Charles	3.00 and up	5.00 and up	6.00 and up

All rooms are with bath. A few rooms without bath are available at several hotels at slightly lower rates than those quoted.
Reservations are to be made through a central agency and should be addressed to:

DONALD M. HALLEY
c/o Convention and Visitors Bureau
Box 1460
New Orleans, Louisiana

Because of the sports program featuring the Sugar Bowl game on New Year's Day, meeting reservations and rates expire at 6:00 P.M. on December 30. Those expecting to stay after that time should make prior arrangements with their hotel.

The American Economic Association is arranging to run special trains from New York City, Chicago, Los Angeles, and San Francisco. Members of the American Farm Economic Association are cordially invited to make use of these special trains.

Indications are that the railroad fares from the cities indicated will be as follows:

From	*Pullman*	*Lower*	*Upper*	*Coach*
New York City				
One way	$40.30	$10.25	$ 7.80	$22.37
Round trip	63.65	20.50	15.60	38.30
Chicago				
One way	28.56	7.10	5.40	15.95*
Round trip	42.30	14.20	10.80	23.25*
San Francisco				
One way	63.86	14.70	11.20	47.90
Round trip	89.25	29.40	22.40	64.40
Los Angeles				
One way	59.86	14.70	11.20	44.90
Round trip	89.25	29.40	22.40	64.40

* This rate will apply on the special train December 26.

The schedule for the special trains will probably be as follows:

	Leave	*Arr. New Orleans*
New York City	Dec. 25, 9:45 P.M.	Dec. 27, 7:45 A.M.
Chicago	Dec. 26, 12:15 P.M.	Dec. 27, 10:15 A.M.
San Francisco	Dec. 24, 8:15 A.M.	Dec. 27, 7:45 A.M.
Los Angeles	Dec. 24, 8:15 A.M.	

It will assist in making train arrangements if those who desire to travel by special train will notify one of the following members of the transportation committee.

Train arrangements are being made for the Eastern Shore by C. Reinhold Noyes (455 East 51st Street, New York City); for the Central States by James Washington Bell (Northwestern University, Evanston, Illinois); and for the Pacific Coast by Bernard F. Haley (Stanford University, California). Members seeking information about plans relating to different localities may consult them.

AMERICAN ECONOMIC REVIEW

CONTENTS

Volume XXX September, 1940

The AMERICAN ECONOMIC REVIEW, a quarterly, is the official publication of the American Economic Association and is sent to all members. The annual dues are $5.00. Address editorial communications to Dr. Davis R. Dewey, editor, AMERICAN ECONOMIC REVIEW, Massachusetts Institute of Technology, Cambridge, Massachusetts; all other communications to the Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

RURAL SOCIOLOGY

Devoted to Scientific Study of Rural Life

Vol. 5, No. 3 **CONTENTS** **September, 1940**

RURAL SOCIOLOGY is published quarterly in March, June, September, and December, by the Louisiana State University Press for the Rural Sociological Society. Membership dues in the society, including subscription, are $3.00 per year. Subscription rates to nonmembers and libraries are $2.50 per year; single issue, $.75. For further information write T. Lynn Smith, Managing Editor, University, Louisiana.

1940 Annual Meeting

of

The American Farm Economic Association

Headquarters: Roosevelt Hotel

New Orleans

December 27, 28 and 29

Other allied associations meeting at the same time and at the same place, will be:

The American Economic Association, the Econometric Society, the Southern Economic Association, and the Agricultural History Society.

◆ ◆ ◆

Tours are being arranged for members of the Association who desire to study the agriculture and markets of the south during attendance at the annual meeting. The tour committee, with the help of the Delta Council, is preparing a map of possible routes through the Mississippi Valley from Cairo to New Orleans. Those wishing to make this tour should communicate with Joseph Ackerman, Farm Foundation, 600 South Michigan Avenue, Chicago, Illinois.

The JOURNAL OF FARM ECONOMICS is published quarterly, February, May, August and November by The American Farm Economic Association. Yearly subscription $5. Published at Menasha, Wisconsin.

Editorial communications including manuscripts submitted for publication, books for review or inquiries concerning the JOURNAL should be addressed to T. W. Schultz, Department of Economics and Sociology, Iowa State College, Ames, Iowa.

Applications for membership or inquiries regarding the general affairs of the Association should be addressed to Asher Hobson, Department of Agricultural Economics, University of Wisconsin, Madison, Wisconsin.

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